

Analog Science Fact-fiction

Jan. 1961 • 50 Cents

JOHN W. CAMPBELL,
EDITOR



The Lagging Profession
By Leonard Lockhard

THE HIGHEST TREASON, By Randall Garrett

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

AMERICAN BASIC SCIENCE CLUB



Sensational LOW COST SCIENCE LAB

NOW over 110 fascinating projects with

SOUND ELECTRICITY HEAT ELECTRONICS LIGHT ATOMIC ENERGY

COMPLETE LABORATORY COMES IN 8 KITS, ONE A MONTH. SUPPLIES ALL THE EQUIPMENT FOR ALL THE FOLLOWING:

A REAL SCIENCE COURSE

Developed with World Famous
SOUTHWEST RESEARCH INSTITUTE

The 8 manuals are expertly written, clearly illustrated, excitingly different.

NO EXPERIENCE NECESSARY

You can complete every project and GAIN A VALUABLE SCIENCE BACKGROUND that will ENRICH YOUR LIFE and could SHAPE YOUR FUTURE!



Analyzing Glowing Gases with the SPECTROSCOPE



PHOTOMICROGRAPH of a Fly's Wing made with Microscope and Photo Lab (Actual Size 5" diameter)

A VALUABLE SCIENCE LAB

Containing Parts by RCA, MALLORY, PYRAMID, STACKPOLE, TRIM and other reliable manufacturers. Retail Value of Parts Alone is over FIFTY DOLLARS

MEMBERS ARE ENTHUSIASTIC!

Your course is very enjoyable and educational for all ages. I would not sell mine for twice the price.

I wish I could provide each of my Physics students with all of your enjoyable kits. You are doing a wonderful job.

Allen T. Ayers, Physics Dept.
Jamestown High School
Jamestown, New York

AMERICAN BASIC SCIENCE CLUB, Inc. San Antonio, Tex.

ELECTRICAL EXPERIMENTS

Educational fun with Electro-Magnets, Transformer, Galvanometer, Rheostat, Relay, Voltmeter, Wheatstone Bridge, and other electric equipment.

PHOTOELECTRIC EYE

Photoelectric Cell, Stiller lamp, and Electronic Relay. Everything you need to control motors, bells, alarms, and do other light beam experiments.

CODE PRACTICE SET

Signal Oscillator, Key and Flasher... the complete outfit to learn to receive and transmit the Morse Code... the first step to a Ham License.

RADIO SERVICE EQUIPMENT

All the parts to build your own Radio Signal Tracer and a Probe Light Continuity Tester. Both pieces are invaluable in radio servicing.

PHOTOGRAPHY LAB

Complete dark room equipment: Printer - Enlarger - Electronic Timer - Safe Light - Developing Trays and supply of paper and chemicals.

SPECTROSCOPE

Fascinating optical instrument used to identify and analyze substances by observing the spectrum of their flame. Spectrum charts are included.

ULTRAVIOLET LAMP

Produces dazzling color effects with invisible "black light". Used extensively for crime detection, mineralogy and science. Fluorescent ink, Cyan and Tracer Powder are included.

RADIO RECEIVER

Three Tube Short Wave (80 Meter) and Standard Broadcast Receiver. Sensitive Regenerative Circuit uses regular 115 volt AC. Complete with Head Set.

MICROPHONE

A sensitive carbon-button microphone that greatly amplifies unexpected noise. Also adaptable for use with your radio transmitter.

STROBE LIGHT

A variable pulse flash lamp. "Freezer" motion of rapidly vibrating or rotating objects for class study and checking frequencies. RPM.

SOUND EXPERIMENTS

Laboratory demonstration of sound waves, resonance and pitch. Includes Variable Frequency Oscillator, Sonometer and Bippa Tent.

SLIDE PROJECTOR

Takes 16mm and 35mm slides sharp focusing, convexity coated. G.E. Projection Lamp included. Also adaptable as a Projection Microscope.

ATOMIC RADIATION EXPM.

A variety of projects using Spectroscopic and sensitive Electroscope. Sample sources of radioactive Thorium Oxide and Radium are included.

HEAT EXPERIMENTS

Study the Molecular Theory of heat using 2 Thermometers, Thermocouple, 3 fuel Gas Thermometers and special Microscope arrangement that shows the effect of Molecular Movement.

DC POWER SUPPLY

Power Transformer, Vacuum Tube Rectifier and 250-0-250 Volt Center Filter Circuit. Converts house AC to the DC required for Electronic Circuits.

ELECTRONIC EXPERIMENTS

Explore functions of vacuum tubes and other electronic components. Build an Electronic Switch-Flasher, and other experimental devices.

BROADCAST TRANSMITTER

Sends clear intelligible signals of 1000 cycles and more to nearby radios. Can be used with your microphone, record player, or radio amplifier.

TELESCOPE

A mounted astronomical telescope. High quality ground lenses are easy to examine details of the moon's surface and distant objects.

MICROSCOPE

High and low power, portable ground lenses. Substage Light and Polarizer. Adaptable for photomicrography in connection with Photo Lab.

ATOMIC CLOUD CHAMBER

See ionized tracks of the passing nuclear particles accumulating in a radioactive Alpha source and mysterious atomic rays from color target.

WEATHER STATION

Atmospheric Recorder, Cap. Thermometer that electronically measures wind speed, Rising Thermometer, Humidity Gauge, Cloud Spar. Indicator, Cloud Chart and V. Weather Map.

ALL THE EQUIPMENT FOR ALL THE ABOVE only \$29

SEND \$200 WITH ONLY COUPON PAY \$345 FOR EACH KIT YOU RECEIVE (ONE A MONTH FOR 8 MONTHS) FREE

SOLDERING IRON with second Kit

Your Satisfaction or Your Money Back...AND you may cancel at any time without obligation.

These "no risk" assurances because we know you will be...

SURPRISED! AMAZED! DELIGHTED!

FOR SAFETY!

Circuits are low voltage supplied by isolation transformer that comes with first kit.



AMERICAN BASIC SCIENCE CLUB

301 E. Crockett, San Antonio 6, Texas

Start sending me A.B.S.C.'s "Science Lab" in eight kits one each month. If not satisfied on inspection of first kit I may return it for immediate refund. (I choose the plan checked.)
[] I enclose \$2.00 and will pay \$3.45 plus C.O.D. postage on arrival of each kit. I may cancel unshipped kits at any time.
[] I enclose \$29.60, full payment. Postage Paid, for all 8 kits. I may cancel any time and get full refund on unshipped kits.

NAME _____

STREET _____

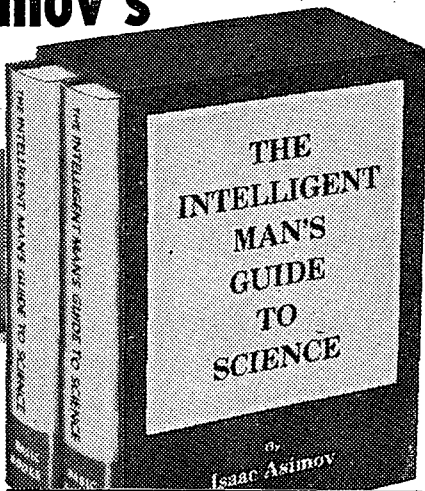
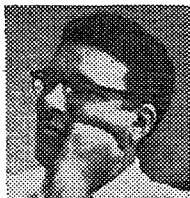
CITY _____ STATE _____

FREE! These 6 Auxiliary Textbooks

MAIL COUPON TODAY

Announcing Isaac Asimov's greatest book

**In a remarkable
new two-volume work,
the well-known
science fiction writer
brings the entire world
of scientific knowledge
into plain, sharp focus**



In **THE INTELLIGENT MAN'S GUIDE TO SCIENCE**, just published, Isaac Asimov has written two volumes which take as their subject the entire universe of scientific knowledge, yet which read with all the suspense, excitement and human interest of his swiftly-moving science fiction. Scientist, educator and author of more than thirty published volumes, Asimov has, with this new work, achieved the highest point to date in an illustrious career.

By a remarkable weaving together of developments in every major field, **THE INTELLIGENT MAN'S GUIDE TO SCIENCE** tells the fascinating, continuous story of scientific exploration and discovery through the ages, encompassing every significant accomplishment and every figure of stature.

You will learn how an obscure mathematical formulation paved the way for the first self-sustaining fission reaction and the beginning of the atomic age... how observations by astronomers with powerful modern telescopes helped geologists and physicists compute the age of the universe... how an 18-year-old student's attempt to synthesize quinine for use in treating malaria led to the discovery of aniline dye and the birth of a great industry...

Regularly available at \$15.00, this monumental set is being offered for a limited time to readers of selected science fiction periodicals at a saving of more than 20%—as a courtesy to long-time admirers of the work of

- Nearly 1000 pages; 2 volumes, boxed
- 219 photographs and illustrations
- Preface by George W. Beadle, winner of the Nobel Prize in Medicine and Physiology
- Published at \$15.00/Courtesy price \$11.95

Isaac Asimov. To obtain his **INTELLIGENT MAN'S GUIDE TO SCIENCE** at only \$11.95, send in the coupon below, indicating your choice of one of the two convenient payment methods. Regardless of which method you elect, your money will be refunded within ten days if you are not totally delighted.

Published at \$15.00; Yours for \$11.95

Basic Books, Inc., Publishers P-83
59 Fourth Avenue, New York 3, N.Y.

Please send me a set of *The Intelligent Man's Guide to Science* at the courtesy price of \$11.95, for which I enclose payment as indicated below. I understand that, if not delighted, I may return the books within 10 days and my money will be fully refunded.

CHECK-ONE

- ☐ I enclose \$11.95 in full payment. (We pay postage.)
- ☐ I enclose \$5.00; please bill me for the balance, plus postage, in two equal monthly installments.

NAME _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

BASIC BOOKS, Publishers, Inc.

59 Fourth Avenue, New York 3, N.Y.

Analog Science Fact Fiction

Novelettes

- The Highest Treason, *Randall Garrett* . . . 8
Card Trick, *Walter Bupp* 70

Short Story

- The Green Beret, *Tom Purdom* 59

Serial

- Occasion for Disaster, *Mark Phillips* . . . 112
(Part Three of Four Parts)

Science Fact

- Time for Tom Swift, *G. Harry Stine* . . . 83

Special Feature

- The Lagging Profession, *Leonard Lockhard* 102

Readers' Departments

- The Editor's Page 5
In Times to Come 58
The Analytical Laboratory 156
The Reference Library, *P. Schuyler Miller* . 157
Brass Tacks 168

JOHN W. CAMPBELL

Editor

KAY TARRANT

Assistant Editor

Advertising Manager: WALTER J. McBRIDE
H. A. Staab, Art Director

COVER BY VAN DONGEN

Illustrations by Douglas, Gardner, Schoenherr, Summers
and Van Dongen

Executive and Editorial offices, 575 Madison Avenue, New York 22, New York

VOL. LXVI

NO. 5

JANUARY 1961

The editorial contents have not been published before, are protected by copyright and cannot be reprinted without publisher's permission. All stories in this magazine are fiction. No actual persons (except Arthur C. Clarke) are designated by name or character. Any similarity is coincidental.

Analog Science Fact & Fiction is published monthly by Street & Smith Publications, Inc., 575 Madison Avenue, New York 22, New York. Arthur Z. Gray, President; Robert E. Park, Vice-President and Advertising Director; Thomas H. Kaiser, Secretary-Treasurer. Copyright © 1960 by Street & Smith Publications, Inc. All rights reserved. Printed in the U. S. A. Second-class postage paid at New York, N. Y., and at additional mailing offices. Subscription \$5.00 for one year, \$9.00 for two years, and \$12.00 for three years in the United States, possessions and Canada. Outside United States, possessions and Canada, Analog Science Fact & Fiction is \$7.50 for one year and \$15.00 for two years. When possible allow four weeks for change of address. Give old address and new address when notifying us. All subscriptions should be addressed to Subscription Department, Street & Smith Publications, Inc., Post Office Box 100, Greenwich, Connecticut. We cannot accept responsibility for unsolicited manuscripts or art work. Any material submitted must include return postage.

Send notice of undelivered copies on Form 3579 to: Analog Science Fact & Fiction, McCall Street, Dayton 1, Ohio.



NEXT ISSUE ON SALE
JANUARY 17, 1961

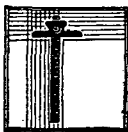
\$5.00 per Year in U. S. A.
50 Cents per Copy

ELECTRONIC REPRODUCTION PROHIBITED



DITORIAL

STARBLINDED



HE names have been various, but the situation is familiar in science fiction:

Chester Q. Hero is trying out the first hoped-to-be interstellar, faster-than-light ship. He pushes the button, a million miles off Earth, there is an instant's sense of total disintegration, then . . . he's elsewhere!

"Ha!" says Chesty. "It works! Now how far have we come—" And he glances out the viewports, in the vision screen, or whatever this particular model comes equipped with, looks sternly at the stars outside, and says, "Hm-m-m . . . must be almost twenty light-years! The constellations are massively displaced and distorted."

Now first of all, let's dump *you*, the personal-individual reading this,

in Chesty's spot. But we'll start easier; if you were dumped suddenly on an island somewhere off the coast of Australia, on a bright spring night—say in mid-November—would you be willing to lay a respectable bet that you could recognize *any* constellation whatever?

For that matter, a small privately conducted survey of friends around here indicates that something like ninety-five per cent of us couldn't recognize anything but the Great Dipper in even the familiar northern hemisphere. This includes people who can name the spectral classes of most of the more interesting local stars, give the distance to various planets, their diameters and relative masses and surface gravities . . . but can't find any of 'em in the night sky. Oh, Venus, maybe; after all, if it looks like an air liner's landing light,

but doesn't move visibly across the sky—that's Venus.

In other words, a lot of us can talk a real good game of astronomy . . . but not quite so many of us can play it.

I haven't had much opportunity to question any number of top-rank astrophysicists . . . but I have a slight suspicion that quite a number of them couldn't find M31 in the sky, without the aid of the star tables, and the hour and declination circles on the telescope.

Now it's fair to assume that Chesty Hero was selected for the test-flight after some reasonable training in stellar phenomena. It's fair to assume that he'd been put through a course of training so he could recognize constellations.

My bet is, he'd still need a week to find out where the constellations were, and that there's a fifty-fifty chance he never would recognize 'em!

Most people, trying to locate Andromeda, say, start by finding the Big Dipper, then Polaris and the Little Dipper, Cassiopeia, and thence to Andromeda. That is, they start with a very easily and surely identified star-pattern, and then use that as a guide.

So how would you do on that island off Southern Australia?

Now inasmuch as most of you reading this live in or near a major city, in the United States, if you *have* learned to spot the constellations, you've learned it by the Great Dipper-Polaris route usually—which

won't help you a bit Down Under.

Chesty Hero's apt to be in about the same sort of spot. His best guide-points will be the Magellanic Clouds . . . if he can find 'em.

One thing that's going to make things more than somewhat difficult is that there will be too many stars visible. On Earth, in the area of Europe, where astronomy got started, the limit of star visibility, on a clear, moonless night, with good eyes, is the sixth magnitude. In the New York City area, it's normally about the fourth magnitude; it's exceptional to be able to see the two fifth magnitude stars in the bowl of the Little Dipper.

However, in the mountains in dry areas, such as Arizona, or, even more, Chile and Peru, good eyes can spot eighth and even ninth magnitude stars.

Chesty's going to be seeing tenth and probably eleventh magnitude stars. Now the image of a star in the retina is smaller than any one rod or cone; however the surface-brightness of stars being what it is, the whole rod or cone is triggered and sends a nerve impulse to the brain. This makes all the stars of reasonably low magnitude the same "size." The constellations in space don't carry neat printed legends like DELPHINUS or MICROSCOPIUM; just spatter enough extra stars around—and by the time you're down to the tenth magnitude, man, there's more than enough!—and finding *anything* familiar will be a job.

In other words, there will be so

high a "noise level" that the constellation-signals will be drowned out.

All right, so Hero puts neutral gray filters over the viewports, and cuts everything back down to the sixth, or the fourth magnitude if he chooses.

He's still in trouble.

Everybody knows—it says right here in the textbooks—that Alpha Centarus is the star nearest the Earth. Welllll . . . it doesn't quite say that in the *good* textbooks; it says the nearest *known* star. The difference is somewhat important. As follows:

Sirius, the brightest star in the night skies, has an apparent magnitude of -1.6 . (Remember a negative magnitude of -1 means 2.5 times brighter than a 0.0 magnitude, and 2.5×2.5 times brighter than a first magnitude.) Sirius is really a brilliant star—it's absolute magnitude is 1.3—that is, at ten parsecs—about thirty-two light-years—it would still be a "first magnitude" star. Sirius is one star that is bright because it *is* bright, as well as being near. Rigel, on the other hand, has an apparent magnitude of 0.3—which makes it the seventh brightest of all the stars in Earth's skies. It just happens to be 540 light-years distant, some 700 times brighter than Sirius, and 21,000 times brighter than Sol. Canopus, apparent magnitude -0.9 is a full magnitude brighter than Alpha Centaurus—which is the third brightest seen from Earth—despite the fact Canopus is 100 light-years distant.

Now it's pretty obvious that when astronomers start looking for which stars are near-by, there'll be a tendency to start with the brightest one. But as the above data shows, there's darned poor correlation between brightness and nearness! Brightest, Sirius, distant 8.6 light-years. Second, Canopus, distant 100 light-years. Finally, in third place, Alpha Centaurus, at 4.3 light-years.

The list of the twenty brightest stars ends with Regulus, #20, apparent magnitude 1.3, sixty-seven light-years distant; #19, also magnitude 1.3, is Deneb, at 400 light-years.

But the second *nearest* star—so far as now known!—is 6.1 light-years distant, and can't be seen with the naked eye, even in the Alps or Rockies—its magnitude is 9.7, apparent—and 13.3 absolute. It radiates only 0.0008 as much light as the Sun. It's known as "Barnard's run-away star"; it's moving across the sky at a rate of ten seconds or arc per year, and, at the same time, clipping along at seventy miles a second radially. It's a good many millions of miles closer to us when you read this, than it was when I wrote it.

Barnard's Star was investigated because of its very large proper motion—motion across the line of sight. To understand why, consider a story of the early testing days at White Sands.

When test missiles were fired, they were, of course, most elaborately metered, telemetered, tracked, and photographed. Some of the super-telephoto tracking movie cameras were

(Continued on page 174)

The highest treason of all is not so easy to define

—and be it noted carefully that the true traitor

in this case was not singular, but very plural . . .

THE HIGHEST . .

By

RANDALL GARRETT

Illustrated by Gardner

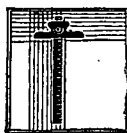


... TREASON



THE HIGHEST TREASON

The Prisoner



HE two rooms were not luxurious, but MacMaine hadn't expected that they would be. The walls were a flat metallic gray, unadorned and windowless. The ceilings and floors were simply continuations of the walls, except for the glow-plates overhead. One room held a small cabinet for his personal possessions, a wide, reasonably soft bed, a small but adequate desk, and, in one corner, a cubicle that contained the necessary sanitary plumbing facilities.

The other room held a couch, two big easy-chairs, a low table, some bookshelves, a squat refrigerator containing food and drink for his occasional snacks—his regular meals were brought in hot from the main kitchen—and a closet that contained his clothing—the insignialess uniforms of a Kerothi officer:

No, thought Sebastian MacMaine, it was not luxurious, but neither did it look like the prison cell it was.

There was comfort here, and even the illusion of privacy, although there were TV pickups in the walls, placed so that no movement in either room would go unnoticed. The switch which cut off the soft white light from the glow plates did not cut off the infrared radiation which enabled his hosts to watch him while he slept. Every sound was heard and recorded.

But none of that bothered MacMaine. On the contrary, he was glad of it. He wanted the Kerothi to know

that he had no intention of escaping or hatching any plot against them.

He had long since decided that, if things continued as they had, Earth would lose the war with Keroth, and Sebastian MacMaine had no desire whatever to be on the losing side of the greatest war ever fought. The problem now was to convince the Kerothi that he fully intended to fight with them, to give them the full benefit of his ability as a military strategist, to do his best to win every battle for Keroth.

And that was going to be the most difficult task of all.

A telltale glow of red blinked rapidly over the door, and a soft chime pinged in time with it.

MacMaine smiled inwardly, although not a trace of it showed on his broad-jawed, blocky face. To give him the illusion that he was a guest rather than a prisoner, the Kerothi had installed an announcer at the door and invariably used it. Not once had any one of them ever simply walked in on him.

"Come in," MacMaine said.

He was seated in one of the easy-chairs in his "living room," smoking a cigarette and reading a book on the history of Keroth, but he put the book down on the low table as a tall Kerothi came in through the doorway.

MacMaine allowed himself a smile of honest pleasure. To most Earthmen, "all the Carrot-skins look alike," and, MacMaine admitted honestly to himself, he hadn't yet trained himself completely to look beyond the

strangenesses that made the Kerothi different from Earthmen and see the details that made them different from each other. But this was one Kerothi that MacMaine would never mistake for any other.

"Tallis!" He stood up and extended both hands in the Kerothi fashion. The other did the same, and they clasped hands for a moment. "How are your guts?" he added in Kerothic.

"They function smoothly, my sibling-by-choice," answered Space General Polan Tallis. "And your own?"

"Smoothly, indeed. It's been far too long a time since we have touched."

The Kerothi stepped back a pace and looked the Earthman up and down. "You look healthy enough—for a prisoner. You're treated well, then?"

"Well enough. Sit down, my sibling-by-choice." MacMaine waved toward the couch nearby. The general sat down and looked around the apartment.

"Well, well. You're getting preferential treatment, all right. This is as good as you could expect as a battleship commander. Maybe you're being trained for the job."

MacMaine laughed, allowing the touch of sardonicism that he felt to be heard in the laughter. "I might have hoped so once, Tallis. But I'm afraid I have simply come out even. I have traded nothing for nothing."

General Tallis reached into the pocket of his uniform jacket and took

out the thin aluminum case that held the Kerothi equivalent of cigarettes. He took one out, put it between his lips, and lit it with the hotpoint that was built into the case.

MacMaine took an Earth cigarette out of the package on the table and allowed Tallis to light it for him. The pause and the silence, MacMaine knew, were for a purpose. He waited. Tallis had something to say, but he was allowing the Earthman to "adjust to surprise." It was one of the fine points of Kerothi etiquette.

A sudden silence on the part of one participant in a conversation, under these particular circumstances, meant that something unusual was coming up, and the other person was supposed to take the opportunity to brace himself for shock.

It could mean anything. In the Kerothi Space Forces, a superior informed a junior officer of the junior's forthcoming promotion by just such tactics. But the same tactics were used when informing a person of the death of a loved one.

In fact, MacMaine was well aware that such a period of silence was *de rigueur* in a Kerothi court, just before sentence was pronounced, as well as a preliminary to a proposal of marriage by a Kerothi male to the light of his love.

MacMaine could do nothing but wait. It would be indelicate to speak until Tallis felt that he was ready for the surprise.

It was not, however, indelicate to watch Tallis' face closely; it was ex-

pected. Theoretically, one was supposed to be able to discern, at least, whether the news was good or bad.

With Tallis, it was impossible to tell, and MacMaine knew it would be useless to read the man's expression. But he watched, nonetheless.

In one way, Tallis' face was typically Kerothi. The orange-pigmented skin and the bright, grass-green eyes were common to all Kerothi. The planet Keroth, like Earth, had evolved several different "races" of humanoid, but, unlike Earth, the distinction was not one of color.

MacMaine took a drag off his cigarette and forced himself to keep his mind off whatever it was that Tallis might be about to say. He was already prepared for a death sentence—even a death sentence by torture. Now, he felt, he could not be shocked. And, rather than build up the tension within himself to an unbearable degree, he thought about Tallis rather than about himself.

Tallis, like the rest of the Kerothi, was unbelievably humanoid. There were internal differences in the placement of organs, and differences in the functions of those organs. For instance, it took two separate organs to perform the same function that the liver performed in Earthmen, and the kidneys were completely absent, that function being performed by special tissues in the lower colon, which meant that the Kerothi were more efficient with water-saving than Earthmen, since the waste products were excreted as relatively dry solids through an all-purpose cloaca.

But, externally, a Kerothi would need only a touch of plastic surgery and some makeup to pass as an Earthman in a stage play. Close up, of course, the job would be much more difficult—as difficult as a Negro trying to disguise himself as a Swede or *vice versa*.

But Tallis was—

"I would have a word," Tallis said, shattering MacMaine's carefully neutral train of thought. It was a standard opening for breaking the pause of adjustment, but it presaged good news rather than bad.

"I await your word," MacMaine said. Even after all this time, he still felt vaguely proud of his ability to handle the subtle idioms of Kerothic.

"I think," Tallis said carefully, "that you may be offered a commission in the Kerothi Space Forces."

Sebastian MacMaine let out his breath slowly, and only then realized that he had been holding it. "I am grateful, my sibling-by-choice," he said.

General Tallis tapped his cigarette ash into a large blue ceramic ashtray. MacMaine could smell the acrid smoke from the alien plant matter that burned in the Kerothi cigarette—a chopped-up inner bark from a Kerothi tree. MacMaine could no more smoke a Kerothi cigarette than Tallis could smoke tobacco, but the two were remarkably similar in their effects.

The "surprise" had been delivered. Now, as was proper, Tallis would move adroitly all around the subject

until he was ready to return to it again.

"You have been with us . . . how long, Sepastian?" he asked.

"Two and a third *Kronet*."

Tallis nodded. "Nearly a year of your time."

MacMaine smiled. Tallis was as proud of his knowledge of Earth terminology as MacMaine was proud of his mastery of Kerothic.

"Lacking three weeks," MacMaine said.

"What? Three . . . oh, yes. Well. A long time," said Tallis.

Damn it! MacMaine thought, in a sudden surge of impatience, *get to the point!* His face showed only calm.

"The Board of Strategy asked me to tell you," Tallis continued. "After all, my recommendation was partially responsible for the decision." He paused for a moment, but it was merely a conversational hesitation, not a formal hiatus.

"It was a hard decision, Sepastian—you must realize that. "We have been at war with your race for ten years now. We have taken thousand of Earthmen as prisoners, and many of them have agreed to co-operate with us. But, with one single exception, these prisoners have been the moral dregs of your civilization. They have been men who had no pride of race, no pride of society, no pride of self. They have been weak, self-centered, small-minded, cowards who had no thought for Earth and Earthmen, but only for themselves.

"Not," he said hurriedly, "that all of them are that way—or even the

majority. Most of them have the minds of warriors, although, I must say, not *strong* warriors."

That last, MacMaine knew, was a polite concession. The Kerothi had no respect for Earthmen. And MacMaine could hardly blame them. For three long centuries, the people of Earth had had nothing to do but indulge themselves in the pleasures of material wealth. It was a wonder that any of them had any moral fiber left.

"But none of those who had any strength agreed to work with us," Tallis went on. "With one exception. You."

"Am I weak, then?" MacMaine asked.

General Tallis shook his head in a peculiarly humanlike gesture. "No. No, you are not. And that is what has made us pause for three years." His grass-green eyes looked candidly into MacMaine's own. "You aren't the type of person who betrays his own kind. It looks like a trap. After a whole year, the Board of Strategy still isn't sure that there is no trap."

Tallis stopped, leaned forward, and ground out the stub of his cigarette in the blue ashtray. Then his eyes again sought MacMaine's.

"If it were not for what I, personally, know about you, the Board of Strategy would not even consider your proposition."

"I take it, then, that they have considered it?" MacMaine asked with a grin.

"As I said, Sepastian," Tallis said, "you have won your case. After al-

most a year of your time, your decision has been justified."

MacMaine lost his grin. "I am grateful, Tallis," he said gravely. "I think you must realize that it was a difficult decision to make."

His thoughts went back, across long months of time and longer light-years of space, to the day when that decision had been made.

The Decision

Colonel Sebastian MacMaine didn't feel, that morning, as though this day were different from any other. The sun, faintly veiled by a few wisps of cloud, shone as it always had; the guards at the doors of the Space Force Administration Building saluted him as usual; his brother officers nodded politely, as they always did; his aide greeted him with the usual "Good morning, sir."

The duty list lay on his desk, as it had every morning for years. Sebastian MacMaine felt tense and a little irritated with himself, but he felt nothing that could be called a premonition.

When he read the first item on the duty list, his irritation became a little stronger.

"Interrogate Kerothi general."

The interrogation duty had swung round to him again. He didn't want to talk to General Tallis. There was something about the alien that bothered him, and he couldn't place exactly what it was.

Earth had been lucky to capture the alien officer. In a space war,

there's usually very little left to capture after a battle—especially if your side lost the battle.

On the other hand, the Kerothi general wasn't so lucky. The food that had been captured with him would run out in less than six months, and it was doubtful that he would survive on Earth food. It was equally doubtful that any more Kerothi food would be captured.

For two years, Earth had been fighting the Kerothi, and for two years Earth had been winning a few minor skirmishes and losing the major battles. The Kerothi hadn't hit any of the major colonies yet, but they had swallowed up outpost after outpost, and Earth's space fleet was losing ships faster than her factories could turn them out. The hell of it was that nobody on Earth seemed to be very much concerned about it at all.

MacMaine wondered why he let it concern him. If no one else was worried, why did he let it bother him? He pushed the thought from his mind and picked up the questionnaire form that had been made out for that morning's session with the Kerothi general. Might as well get it over with.

He glanced down the list of further duties for the day. It looked as though the routine interrogation of the Kerothi general was likely to provide most of the interest in the day's work at that.

He took the dropchute down to the basement of the building, to the small prison section where the alien

officer was being held. The guards saluted nonchalantly as he went in. The routine questioning sessions were nothing new to them.

MacMaine turned the lock on the prisoner's cell door and went in. Then he came to attention and saluted the Kerothi general. He was probably the only officer in the place who did that, he knew; the others treated the alien general as though he were a criminal. Worse, they treated him as though he were a petty thief or a common pickpocket—criminal, yes, but of a definitely inferior type.

General Tallis, as always, stood and returned the salute. "Cut mawnik, Cunnel MacMaine," he said. The Kerothi language lacked many of the voiced consonants of English and Russian, and, as a result, Tallis' use of *B, D, G, J V*, and *Z* made them come out as *P, T, K, CH, F*, and *S*. The English *R*, as it is pronounced in *run* or *rat*, eluded him entirely, and he pronounced it only when he could give it the guttural pronunciation of the German *R*. The terminal *NG* always came out as *NK*. The nasal *M* and *N* were a little more drawn out than in English, but they were easily understandable.

"Good morning, General Tallis," MacMaine said. "Sit down. How do you feel this morning?"

The general sat again on the hard bunk that, aside from the single chair, was the only furniture in the small cell. "Ass well ass coot pe expectet. I ket ferry little exercise. I

... how iss it set? ... I pecome soft? Soft? Iss correct?"

"Correct. You've learned our language very well for so short a time."

The general shrugged off the compliment. "Wen it iss a matteh of learnn in orrtter to surfie, one learnss."

"You think, then, that your survival has depended on your learning our language?"

The general's orange face contrived a wry smile. "Opfiously. Your people fill not learn Kerothic. If I cannot answeerr questionss, I am uff no use. Ass lonk ass I am uff use, I will liff. Not?"

MacMaine decided he might as well spring his bomb on the Kerothi officer now as later. "I am not so certain but that you might have stretched out your time longer if you had forced us to learn Kerothic, general," he said in Kerothic. He knew his Kerothic was bad, since it had been learned from the Kerothi spaceman who had been captured with the general, and the man had been badly wounded and had survived only two weeks. But that little bit of basic instruction, plus the work he had done on the books and tapes from the ruined Kerothi ship, had helped him.

"Ah?" The general blinked in surprise. Then he smiled. "Your accent," he said in Kerothic, "is atrocious, but certainly no worse than mine when I speak your *Inklitch*. I suppose you intend to question me in Kerothic now, eh? In the hope that I may reveal more in my own tongue?"

"Possibly you may," MacMaine said with a grin, "but I learned it for my own information."

"For your own what? Oh. I see. Interesting. I know no others of your race who would do such a thing. Anything which is difficult is beneath them."

"Not so, general. I'm not unique. There are many of us who don't think that way."

The general shrugged. "I do not deny it. I merely say that I have met none. Certainly they do not tend to go into military service. Possibly that is because you are not a race of fighters. It takes a fighter to tackle the difficult just because it is difficult."

MacMaine gave him a short, hard laugh. "Don't you think getting information out of *you* is difficult? And yet, we tackle that."

"Not the same thing at all. Routine. You have used no pressure. No threats, no promises, no torture, no stress."

MacMaine wasn't quite sure of his translation of the last two negative phrases. "You mean the application of physical pain? That's barbaric."

"I won't pursue the subject," the general said with sudden irony.

"I can understand that. But you can rest assured that we would never do such a thing. It isn't civilized. Our civil police do use certain drugs to obtain information, but we have so little knowledge of Kerothi body chemistry that we hesitate to use drugs on you."

"The application of stress, you say, is not civilized. Not, perhaps, accord-

ing to your definition of"—he used the English word—"civilized. No. Not civilized—but it works." Again he smiled. "I said that I have become soft since I have been here, but I fear that your civilization is even softer."

"A man can lie, even if his arms are pulled off or his feet crushed," MacMaine said stiffly.

The Kerothi looked startled. When he spoke again, it was in English. "I will say no morr. If you haff questionss to ask, ko aheth. I will not take up time with further talkink."

A little angry with himself and with the general, MacMaine spent the rest of the hour asking routine questions and getting nowhere, filling up the tape in his minicorder with the same old answers that others had gotten.

He left, giving the general a brisk salute and turning before the general had time to return it.

Back in his office, he filed the tape dutifully and started on Item Two of the duty list: *Strategy Analysis of Battle Reports*.

Strategy analysis always irritated and upset him. He knew that if he'd just go about it in the approved way, there would be no irritation—only boredom. But he was constitutionally incapable of working that way. In spite of himself, he always played a little game with himself and with the General Strategy Computer.

The only battle of significance in the past week had been the defense of an Earth outpost called Bennington IV. Theoretically, MacMaine was

supposed to check over the entire report, find out where the losing side had erred, and feed correctional information into the Computer. But he couldn't resist stopping after he had read the first section: *Information Known to Earth Commander at Moment of Initial Contact*.

Then he would stop and consider how he, personally, would have handled the situation if he had been the Earth commander. So many ships in such-and-such places. Enemy fleet approaching at such-and-such velocities. Battle array of enemy thus-and-so.

Now what?

MacMaine thought over the information on the defense of Bennington IV and devised a battle plan. There was a weak point in the enemy's attack, but it was rather obvious. MacMaine searched until he found another weak point, much less obvious than the first. He knew it would be there. It was.

Then he proceeded to ignore both weak points and concentrate on what he would do if he were the enemy commander. The weak points were traps; the computer could see them and avoid them. Which was just exactly what was wrong with the computer's logic. In avoiding the traps, it also avoided the best way to hit the enemy. A weak point is weak, no matter how well it may be booby-trapped. In baiting a rat trap, you have to use real cheese because an imitation won't work.

Of course, MacMaine thought to himself, *you can always poison the*

cheese, but let's not carry the analogy too far.

All right, then. How to hit the traps?

It took him half an hour to devise a completely wacky and unorthodox way of hitting the holes in the enemy advance. He checked the time, carefully, because there's no point in devising a strategy if the battle is too far gone to use it by the time you've figured it out.

Then he went ahead and read the rest of the report. Earth had lost the outpost. And, worse, MacMaine's strategy would have won the battle if it had been used. He fed it through his small office computer to make sure. The odds were good.

And that was the thing that made MacMaine hate Strategy Analysis. Too often, he won; too often, Earth lost. A computer was fine for working out the logical outcome of a battle if it was given the proper strategy, but it couldn't devise anything new.

Colonel MacMaine had tried to get himself transferred to space duty, but without success. The Commanding Staff didn't want him out there.

The trouble was that they didn't believe MacMaine actually devised his strategy before he read the complete report. How could anyone out-think a computer?

He'd offered to prove it. "Give me a problem," he'd told his immediate superior, General Matsukuo. "Give me the Initial Contact information of a battle I haven't seen before, and I'll show you."

And Matsukuo had said, testily: "Colonel, I will not permit a member of my staff to make a fool of himself in front of the Commanding Staff. Setting yourself up as someone superior to the Strategy Board is the most antisocial type of egocentrism imaginable. You were given the same education at the Academy as every other officer; what makes you think you are better than they? As time goes on, your automatic promotions will put you in a position to vote on such matters—provided you don't prejudice the Promotion Board against you by antisocial behavior. I hold you in the highest regard, colonel, and I will say nothing to the Promotion Board about this, but if you persist I will have to do my duty. Now, I don't want to hear any more about it. Is that clear?"

It was.

All MacMaine had to do was wait, and he'd automatically be promoted to the Commanding Staff, where he would have an equal vote with the others of his rank. One unit vote to begin with and an additional unit vote for every year thereafter.

It's a great system for running a peacetime social club, maybe, MacMaine thought, but it's no way to run a fighting force.

Maybe the Kerothi general was right. Maybe *homo sapiens* just wasn't a race of fighters.

They had been once. Mankind had fought its way to domination of Earth by battling every other form of life on the planet, from the smallest virus to the biggest carnivore. The fight



against disease was still going on, as a matter of fact, and Man was still fighting the elemental fury of Earth's climate.

But Man no longer fought with Man. Was that a bad thing? The discovery of atomic energy, two centuries before, had literally made war impossible, if the race was to survive. Small struggles bred bigger struggles—or so the reasoning went. Therefore, the society had unconsciously sought to eliminate the reasons for struggle.

What bred the hatreds and jealousies among men? What caused one group to fight another?

Society had decided that intolerance and hatred were caused by inequality. The jealousy of the inferior toward his superior; the scorn of the superior toward his inferior. The Have-not envies the Have, and the Have looks down upon the Have-not.

Then let us eliminate the Have-not. Let us make sure that everyone is a Have.

Raise the standard of living. Make sure that every human being has the necessities of life—food, clothing, shelter, proper medical care, and proper education. More, give them the luxuries, too—let no man be without anything that is poorer in quality or less in quantity than the possessions of any other. There was no longer any middle class simply because there were no other classes for it to be in the middle of.

"The poor you will have always with you," Jesus of Nazareth had said. But, in a material sense, that

was no longer true. The poor were gone—and so were the rich.

But the poor in mind and the poor in spirit were still there—in ever-increasing numbers.

Material wealth could be evenly distributed, but it could not remain that way unless Society made sure that the man who was more clever than the rest could not increase his wealth at the expense of his less fortunate brethren.

Make it a social stigma to show more ability than the average. Be kind to your fellow man; don't show him up as a stupid clod, no matter how cloddish he may be.

All men are created equal, and let's make sure they stay that way!

There could be no such thing as a classless society, of course. That was easily seen. No human being could do everything, learn everything, be everything. There had to be doctors and lawyers and policemen and bartenders and soldiers and machinists and laborers and actors and writers and criminals and bums.

But let's make sure that the differentiation between classes is horizontal, not vertical. As long as a person does his job the best he can, he's as good as anybody else. A doctor is as good as a lawyer, isn't he? Then a garbage collector is just as good as a nuclear physicist, and an astronomer is no better than a street sweeper.

And what of the loafer, the bum, the man who's too lazy or weak-willed to put out any more effort than is absolutely necessary to stay alive?

Well, my goodness, the poor chap can't *help* it, can he? It isn't *his* fault, is it? He has to be helped. There is always *something* he is both capable of doing and willing to do. Does he like to sit around all day and do nothing but watch television? Then give him a sheet of paper with all the programs on it and two little boxes marked *Yes* and *No*, and he can put an X in one or the other to indicate whether he likes the program or not. Useful? Certainly. All these sheets can be tallied up in order to find out what sort of program the public likes to see. After all, his vote is just as good as anyone else's, isn't it?

And a Program Analyst is just as good, just as important, and just as well cared-for as anyone else.

And what about the criminal? Well, what *is* a criminal? A person who thinks he's superior to others. A thief steals because he thinks he has more right to something than its real owner. A man kills because he has an idea that he has a better right to live than someone else. In short, a man breaks the law because he feels superior, because he thinks he can outsmart Society and The Law. Or, simply, because he thinks he can outsmart the policeman on the beat.

Obviously, that sort of antisocial behavior can't be allowed. The poor fellow who thinks he's better than anyone else has to be segregated from normal society and treated for his aberrations. But not punished! Heavens no! His erratic behavior isn't *his* fault, is it?

It was axiomatic that there had to be some sort of vertical structure to society, naturally. A child can't do the work of an adult, and a beginner can't be as good as an old hand. Aside from the fact that it was actually impossible to force everyone into a common mold, it was recognized that there had to be some incentive for staying with a job. What to do?

The labor unions had solved that problem two hundred years before. Promotion by seniority. Stick with a job long enough, and you'll automatically rise to the top. That way, everyone had as good a chance as everyone else.

Promotion tables for individual jobs were worked out on the basis of longevity tables, so that by the time a man reached the automatic retirement age he was automatically at the highest position he could hold. No fuss, no bother, no trouble. Just keep your nose clean and live as long as possible.

It eliminated struggle. It eliminated the petty jockeying for position that undermined efficiency in an organization. Everybody deserves an equal chance in life, so make sure everybody gets it.

Colonel Sebastian MacMaine had been born and reared in that society. He could see many of its faults, but he didn't have the orientation to see all of them. As he'd grown older, he'd seen that, regardless of the position a man held according to seniority, a smart man could exercise more power than those above him if he did it carefully.

A man is a slave if he is held rigidly in a pattern and not permitted to step out of that pattern. In ancient times, a slave was born at the bottom of the social ladder, and he remained there all his life. Only rarely did a slave of exceptional merit manage to rise above his assigned position.

But a man who is forced to remain on the bottom step of a stationary stairway is no more a slave than a man who is forced to remain on a given step of an escalator, and no less so.

Slavery, however, has two advantages—one for the individual, and one which, in the long run, can be good for the race. For the individual, it offers security, and that is the goal which by far the greater majority of mankind seeks.

The second advantage is more difficult to see. It operates only in favor of the exceptional individual. There are always individuals who aspire to greater heights than the one they occupy at any given moment, but in a slave society, they are slapped back into place if they act hastily. Just as the one-eyed man in the kingdom of the blind can be king if he taps the ground with a cane, so the gifted individual can gain his ends in a slave society—provided he thinks out the consequences of any act in advance.

The Law of Gravity is a universal edict which enslaves, in a sense, every particle of matter in the cosmos. The man who attempts to defy the "injustice" of that law by ignoring the consequences of its enforcement will find himself punished rather severely.

It may be unjust that a bird can fly under its own muscle power, but a man who tries to correct that injustice by leaping out of a skyscraper window and flapping his arms vigorously will find that overt defiance of the Law of Gravity brings very serious penalties indeed. The wise man seeks the loopholes in the law, and loopholes are caused by other laws which counteract—not defy!—the given law. A balloon full of hydrogen “falls up” in obedience to the Law of Gravity. A contradiction? A paradox? No. It is the Law of Gravity which causes the density and pressure of a planet’s atmosphere to decrease with altitude, and that decrease in pressure forces the balloon upwards until the balance point between atmospheric density and the internal density of the balloon is reached.

The illustration may seem obvious and elementary to the modern man, but it seems so only because he understands, at least to some extent, the laws involved. It was not obvious to even the most learned man of, say, the Thirteenth Century.

Slavery, too, has its laws, and it is as dangerous to defy the laws of a society as it is to defy those of nature, and the only way to escape the punishment resulting from those laws is to find the loopholes. One of the most basic laws of any society is so basic that it is never, *ever* written down.

And that law, like all basic laws, is so simple in expression and so obvious in application that any man

above the moron level has an intuitive grasp of it. It is the first law one learns as a child.

Thou shalt not suffer thyself to be caught.

The unthinking man believes that this basic law can be applied by breaking the laws of his society in secret. What he fails to see is that such lawbreaking requires such a fantastic network of lies, subterfuges, evasions, and chicanery that the structure itself eventually breaks down and his guilt is obvious to all. The very steps he has taken to keep from getting caught eventually become signposts that point unerringly at the lawbreaker himself.

Like the loopholes in the law of gravity, the loopholes in the laws of society can not entail a *defiance* of the law. Only compliance with those laws will be ultimately successful.

The wise man works within the framework of the law—not only the written, but the unwritten law—of his society. In a slave society, any slave who openly rebels will find that he gets squashed pretty quickly. But many a slave-owner has danced willingly to the tune of a slave who was wiser and cleverer than he, without ever knowing that the tune played was not his own.

And that is the second advantage of slavery. It teaches the exceptional individual to think.

When a wise, intelligent individual openly and violently breaks the laws of his society, there are two things which are almost certain: One: he knows that there is no other

way to do the thing he feels must be done, and—

Two: he knows that he will pay the penalty for his crime in one way or another.

Sebastian MacMaine knew the operations of those laws. As a member of a self-enslaved society, he knew that to betray any sign of intelligence was dangerous. A slight slip could bring the scorn of the slaves around him; a major offense could mean death. The war with Keroth had thrown him slightly off balance, but after his one experience with General Matsukuo, he had quickly regained his equilibrium.

At the end of his work day, MacMaine closed his desk and left his office precisely on time, as usual. Working overtime, except in the gravest emergencies, was looked upon as antisocialism. The offender was suspected of having Ambition—obviously a Bad Thing.

It was during his meal at the Officers' Mess that Colonel Sebastian MacMaine heard the statement that triggered the decision in his mind.

There were three other officers seated with MacMaine around one of the four-place tables in the big room. MacMaine only paid enough attention to the table conversation to be able to make the appropriate noises at the proper times. He had long since learned to do his thinking under cover of general banalities.

Colonel VanDeusen was a man who would never have made Private

First Class in an army that operated on a strict merit system. His thinking was muddy, and his conversation betrayed it. All he felt comfortable in talking about was just exactly what he had been taught. Slogans, banalities, and bromides. He knew his catechism, and he knew it was safe.

"What I mean is, we got nothing to worry about. We all stick together, and we can do anything. As long as we don't rock the boat, we'll come through O.K."

"Sure," said Major Brock, looking up from his plate in blank-faced surprise. "I mean, who says different?"

"Guy on my research team," said VanDeusen, plying his fork industriously. "A wise-guy second looie. One of them."

"Oh," said the major knowingly. "One of them." He went back to his meal.

"What'd he say?" MacMaine asked, just to keep his oar in.

"Ahhh, nothing serious, I guess," said VanDeusen, around a mouthful of steak. "Said we were all clogged up with paper work, makin' reports on tests, things like that. Said, why don't we figure out something to pop those Carrot-skins outa the sky. So I said to him, 'Look, Lootenant,' I said, 'you got your job to do, I got mine. If the paper work's pilin' up,' I said, 'it's because somebody isn't pulling his share. And it better not be you,' I said." He chuckled and speared another cube of steak with his fork. "That settled him down. He's all right, though. Young yet,

you know. Soon's he gets the hang of how the Space Force operates, he'll be O.K."

Since VanDeusen was the senior officer at the table, the others listened respectfully as he talked, only inserting a word now and then to show that they were listening.

MacMaine was thinking deeply about something else entirely, but VanDeusen's influence intruded a little. MacMaine was wondering what it was that bothered him about General Tallis, the Kerothi prisoner.

The alien was pleasant enough, in spite of his position. He seemed to accept his imprisonment as one of the fortunes of war. He didn't threaten or bluster, although he tended to maintain an air of superiority that would have been unbearable in an Earthman.

Was that the reason for his uneasiness in the general's presence? No. MacMaine could accept the reason for that attitude; the general's background was different from that of an Earthman, and therefore he could not be judged by Terrestrial standards. Besides, MacMaine could acknowledge to himself that Tallis *was* superior to the norm—not only the norm of Keroth, but that of Earth. MacMaine wasn't sure he could have acknowledged superiority in another Earthman, in spite of the fact that he knew that there must be men who were his superiors in one way or another.

Because of his social background, he knew that he would probably form an intense and instant dislike

for any Earthman who talked the way Tallis did, but he found that he actually *liked* the alien officer.

It came as a slight shock when the realization hit MacMaine that his liking for the general was exactly why he was uncomfortable around him. Dammit, a man isn't supposed to like his enemy—and most especially when that enemy does and says things that one would despise in a friend.

Come to think of it, though, did he, MacMaine, actually have any friends? He looked around him, suddenly clearly conscious of the other men in the room. He searched through his memory, thinking of all his acquaintances and relatives.

It was an even greater shock to realize that he would not be more than faintly touched emotionally if any or all of them were to die at that instant. Even his parents, both of whom were now dead, were only dim figures in his memory. He had mourned them when an aircraft accident had taken both of them when he was only eleven, but he found himself wondering if it had been the loss of loved ones that had caused his emotional upset or simply the abrupt vanishing of a kind of security he had taken for granted.

And yet, he felt that the death of General Polan Tallis would leave an empty place in his life.

Colonel VanDeusen was still holding forth.

"... So I told him. I said, 'Look, Lootenant,' I said, 'don't rock the boat. You're a kid yet, you know,' I

said. 'You got equal rights with everybody else,' I said, 'but if you rock the boat, you aren't gonna get along so well.'

"'You just behave yourself,' I said, 'and pull your share of the load and do your job right and keep your nose clean, and you'll come out all right.'

"'Time I get to be on the General Staff,' I told him, 'why, you'll be takin' over my job, maybe. That's the way it works,' I said.

"He's a good kid. I mean, he's a fresh young punk, that's all. He'll learn, O.K. He'll climb right up, once he's got the right attitude. Why, when I was—"

But MacMaine was no longer listening. It was astonishing to realize that what VanDeusen had said was perfectly true. A blockhead like VanDeusen would simply be lifted to a position of higher authority, only to be replaced by another blockhead. There would be no essential change in the *status quo*.

The Kerothi were winning steadily, and the people of Earth and her colonies were making no changes whatever in their way of living. The majority of people were too blind to be able to see what was happening, and the rest were afraid to admit the danger, even to themselves. It required no great understanding of strategy to see what the inevitable outcome must be.

At some point in the last few centuries, human civilization had taken the wrong path—a path that led only to oblivion.

It was at that moment that Colonel Sebastian MacMaine made his decision.

The Escape

"Are you sure you understand, Tallis?" MacMaine asked in Kerothic.

The alien general nodded emphatically. "Perfectly. Your Kerothic is not so bad that I could misunderstand your instructions. I still don't understand why you are doing this. Oh I know the reasons you've given me, but I don't completely believe them. However, I'll go along with you. The worst that could happen would be for me to be killed, and I would sooner face death in trying to escape than in waiting for your executioners. If this is some sort of trap, some sort of weird way your race's twisted idea of kindness has evolved to dispose of me, then I'll accept your sentence. It's better than starving to death or facing a firing squad."

"Not a firing squad," MacMaine said. "That wouldn't be kind. An odorless, but quite deadly gas would be pumped into this cell while you slept."

"That's worse. When death comes, I want to face it and fight it off as long as possible, not have it sneaking up on me in my sleep. I think I'd rather starve."

"You would," said MacMaine. "The food that was captured with you has nearly run out, and we haven't been able to capture any more.

But rather than let you suffer, they would have killed you painlessly." He glanced at the watch on his instrument cuff. "Almost time."

MacMaine looked the alien over once more. Tallis was dressed in the uniform of Earth's Space Force, and the insignia of a full general gleamed on his collar. His face and hands had been sprayed with an opaque, pink-tan film, and his hairless head was covered with a black wig. He wouldn't pass a close inspection, but MacMaine fervently hoped that he wouldn't need to.

Think it out, be sure you're right, then go ahead. Sebastian MacMaine had done just that. For three months, he had worked over the details of his plan, making sure that they were as perfect as he was capable of making them. Even so, there was a great deal of risk involved, and there were too many details that required luck for MacMaine to be perfectly happy about the plan.

But time was running out. As the general's food supply dwindled, his execution date neared, and now it was only two days away. There was no point in waiting until the last minute; it was now or never.

There were no spying TV cameras in the general's cell, no hidden microphones to report and record what went on. No one had ever escaped from the Space Force's prison, therefore, no one ever would.

MacMaine glanced again at his watch. It was time. He reached inside his blouse and took out a fully loaded handgun.

For an instant, the alien officer's eyes widened, and he stiffened as if he were ready to die in an attempt to disarm the Earthman. Then he saw that MacMaine wasn't holding it by the butt; his hand was clasped around the middle of the weapon.

"This is a chance I have to take," MacMaine said evenly. "With this gun, you can shoot me down right here and try to escape alone. I've told you every detail of our course of action, and, with luck, you might make it alone." He held out his hand, with the weapon resting on his open palm.

General Tallis eyed the Earthman for a long second. Then, without haste, he took the gun and inspected it with a professional eye.

"Do you know how to operate it?" MacMaine asked, forcing calmness into his voice.

"Yes. We've captured plenty of them." Tallis thumbed the stud that allowed the magazine to slide out of the butt and into his hand. Then he checked the mechanism and the power cartridges. Finally, he replaced the magazine and put the weapon into the empty sleeve holster that MacMaine had given him.

MacMaine let his breath out slowly. "All right," he said. "Let's go."

He opened the door of the cell, and both men stepped out into the corridor. At the far end of the corridor, some thirty yards away, stood the two armed guards who kept watch over the prisoner. At that distance, it was impossible to tell that

Tallis was not what he appeared to be.

The guard had been changed while MacMaine was in the prisoner's cell, and he was relying on the lax discipline of the soldiers to get him and Tallis out of the cell block. With luck, the guards would have failed to listen too closely to what they had been told by the men they replaced; with even greater luck, the previous guardsmen would have failed to be too explicit about who was in the prisoner's cell. With no luck at all, MacMaine would be forced to shoot to kill.

MacMaine walked casually up to the two men, who came to an easy attention.

"I want you two men to come with me. Something odd has happened, and General Quinby and I want two witnesses as to what went on."

"What happened, sir?" one of them asked.

"Don't know for sure," MacMaine said in a puzzled voice. "The general and I were talking to the prisoner, when all of a sudden he fell over. I think he's dead. I couldn't find a heartbeat. I want you to take a look at him so that you can testify that we didn't shoot him or anything."

Obediently, the two guards headed for the cell, and MacMaine fell in behind them. "You couldn't of shot him, sir," said the second guard confidently. "We would of heard the shot."

"Besides," said the other, "it don't

matter much. He was going to be gassed day after tomorrow."

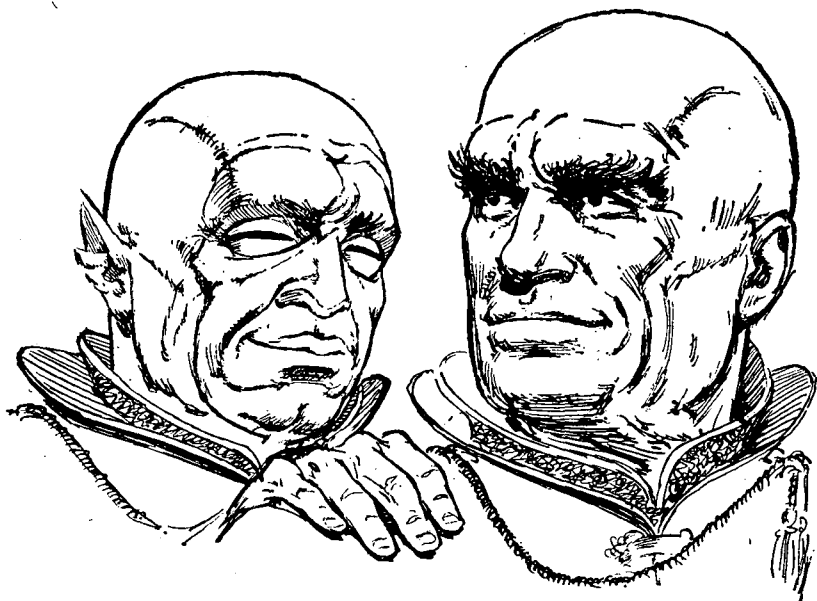
As the trio approached the cell, Tallis pulled the door open a little wider and, in doing so, contrived to put himself behind it so that his face couldn't be seen. The young guards weren't too awed by a full general; after all, they'd be generals themselves someday. They were much more interested in seeing the dead alien.

As the guards reached the cell door, MacMaine unholstered his pistol from his sleeve and brought it down hard on the head of the nearest youth. At the same time, Tallis stepped from behind the door and clouted the other.

Quickly, MacMaine disarmed the fallen men and dragged them into the open cell. He came out again and locked the door securely. Their guns were tossed into an empty cell nearby.

"They won't be missed until the next change of watch, in four hours," MacMaine said. "By then, it won't matter, one way or another."

Getting out of the huge building that housed the administrative offices of the Space Force was relatively easy. A lift chute brought the pair to the main floor, and, this late in the evening, there weren't many people on that floor. The officers and men who had night duty were working on the upper floors. Several times, Tallis had to take a handkerchief from his pocket and pretend to blow his nose in order to conceal his alien features from someone



who came too close, but no one appeared to notice anything out of the ordinary.

As they walked out boldly through the main door, fifteen minutes later, the guards merely came to attention and relaxed as a tall colonel and a somewhat shorter general strode out. The general appeared to be having a fit of sneezing, and the colonel was heard to say: "That's quite a cold you've picked up, sir. Better get over to the dispensary and take an anti-coryza shot."

"Mmmf," said the general. "*Ha-CHOO!*"

Getting to the spaceport was no problem at all. MacMaine had an official car waiting, and the two sergeants in the front seat didn't pay

any attention to the general getting in the back seat because Colonel MacMaine was talking to them. "We're ready to roll, sergeant," he said to the driver. "General Quinby wants to go straight to the *Manila*, so let's get there as fast as possible. Take-off is scheduled in ten minutes." Then he got into the back seat himself. The one-way glass partition that separated the back seat from the front prevented either of the two men from looking back at their passengers.

Seven minutes later, the staff car was rolling unquestioned through the main gate of Waikiki Spaceport.

It was all so incredibly easy, MacMaine thought. Nobody questioned an official car. Nobody checked any-

thing too closely. Nobody wanted to risk his lifelong security by doing or saying something that might be considered antisocial by a busy general. Besides, it never entered anyone's mind that there could be anything wrong. If there was a war on, apparently no one had been told about it yet.

MacMaine thought, *Was I ever that stubbornly blind? Not quite, I guess, or I'd never have seen what is happening.* But he knew he hadn't been too much more perceptive than those around him. Even to an intelligent man, the mask of stupidity can become a barrier to the outside world as well as a concealment from it.

The Interstellar Ship *Manila* was a small, fast, ten-man blaster-boat, designed to get in to the thick of a battle quickly, strike hard, and get away. Unlike the bigger, more powerful battle cruisers, she could be landed directly on any planet with less than a two-gee pull at the surface. The really big babies had to be parked in an orbit and loaded by shuttle; they'd break up of their own weight if they tried to set down on anything bigger than a good-sized planetoid. As long as their antiacceleration fields were on, they could take unimaginable thrusts along their axes, but the A-A fields were the cause of those thrusts as well as the protection against them. The ships couldn't stand still while they were operating, so they were no protection at all against a planet's grav-

ity. But a blaster-boat was small enough and compact enough to take the strain.

It had taken careful preparation to get the *Manila* ready to go just exactly when MacMaine needed it. Papers had to be forged and put into the chain of command communication at precisely the right times; others had had to be taken out and replaced with harmless near-duplicates so that the Commanding Staff wouldn't discover the deception. He had had, to build up the fictional identity of a "General Lucius Quinby" in such a way that it would take a thorough check to discover that the officer who had been put in command of the *Manila* was nonexistent.

It was two minutes until take-off time when the staff car pulled up at the foot of the ramp that led up to the main air lock of the ISS *Manila*. A young-looking captain was standing nervously at the foot of it, obviously afraid that his new commander might be late for the take-off and wondering what sort of decision he would have to make if the general wasn't there at take-off time. MacMaine could imagine his feelings.

"General Quinby" developed another sneezing fit as he stepped out of the car. This was the touchiest part of MacMaine's plan, the weakest link in the whole chain of action. For a space of perhaps a minute, the disguised Kerothi general would have to stand so close to the young captain that the crudity of his make-up job would be detectable. He had

to keep that handkerchief over his face, and yet do it in such a way that it would seem natural.

As Tallis climbed out of the car, chuffing windily into the kerchief, MacMaine snapped an order to the sergeant behind the wheel. "That's all. We're taking off almost immediately, so get that car out of here."

Then he walked rapidly over to the captain, who had snapped to attention. There was a definite look of relief on his face, now that he knew his commander was on time.

"All ready for take-off, captain? Everything checked out? Ammunition? Energy packs all filled to capacity? All the crew aboard? Full rations and stores stowed away?"

The captain kept his eyes on MacMaine's face as he answered "Yes, sir; yes, sir; yes, sir," to the rapid fire of questions. He had no time to shift his gaze to the face of his new C.O., who was snuffling his way toward the foot of the landing ramp. MacMaine kept firing questions until Tallis was halfway up the ramp.

Then he said: "Oh, by the way, captain—was the large package containing General Quinby's personal gear brought aboard?"

"The big package? Yes, sir. About fifteen minutes ago."

"Good," said MacMaine. He looked up the ramp. "Are there any special orders at this time, sir?" he asked.

"No," said Tallis, without turning. "Carry on, colonel." He went on up to the air lock. It had taken Tallis

hours of practice to say that phrase properly, but the training had been worth it.

After Tallis was well inside the air lock, MacMaine whispered to the young captain, "As you can see, the general has got a rather bad cold. He'll want to remain in his cabin until he's over it. See that anti-coryza shots are sent up from the dispensary as soon as we are out of the Solar System. Now, let's go; we have less than a minute till take-off."

MacMaine went up the ramp with the captain scrambling up behind him.

Tallis was just stepping into the commander's cabin as the two men entered the air lock. MacMaine didn't see him again until the ship was twelve minutes on her way—nearly five billion miles from Earth and still accelerating.

He identified himself at the door and Tallis opened it cautiously.

"I brought your anti-coryza shot, sir," he said. In a small ship like the *Manila*, the captain and the seven crew members could hear any conversation in the companionways. He stepped inside and closed the door. Then he practically collapsed on the nearest chair and had a good case of the shakes.

"So-so f-f-far, s-so good," he said.

General Tallis grasped his shoulder with a firm hand. "Brace up, Sebastian," he said gently in Kerothic. "You've done a beautiful job. I still can't believe it, but I'll have to admit that if this is an act it's a beautiful

one." He gestured toward the small desk in one corner of the room and the big package that was sitting on it. "The food is all there. I'll have to eat sparingly, but I can make it. Now, what's the rest of the plan?"

MacMaine took a deep breath, held it, and let it out slowly. His shakes subsided to a faint, almost imperceptible quiver. "The captain doesn't know our destination. He was told that he would receive secret instructions from you." His voice, he noticed thankfully, was almost normal. He reached into his uniform jacket and took out an official-looking sealed envelope. "These are the orders. We are going out to arrange a special truce with the Kerothi."

"What?"

"That's what it says here. You'll have to get on the subradio and do some plain and fancy talking. Fortunately, not a man jack aboard this ship knows a word of your language, so they'll think you're arranging truce terms.

"They'll be sitting ducks when your warship pulls up alongside and sends in a boarding party. By the time they realize what has happened, it will be too late."

"You're giving us the ship, too?" Tallis looked at him wonderingly. "And eight prisoners?"

"Nine," said MacMaine. "I'll hand over my sidearm to you just before your men come through the air lock."

General Tallis sat down in the other small chair, his eyes still on the

Earthman. "I can't help but feel that this is some sort of trick, but if it is, I can't see through it. Why are you doing this, Sepastian?"

"You may not understand this, Tallis," MacMaine said evenly, "but I am fighting for freedom. The freedom to think."

The Traitor

Convincing the Kerothi that he was in earnest was more difficult than MacMaine had at first supposed. He had done his best, and now, after nearly a year of captivity, Tallis had come to tell him that his offer had been accepted.

General Tallis sat across from Colonel MacMaine, smoking his cigarette absently.

"Just why are they accepting my proposition?" MacMaine asked bluntly.

"Because they can afford to," Tallis said with a smile. "You will be watched, my sibling-by-choice. Watched every moment, for any sign of treason. Your flagship will be a small ten-man blaster-boat—one of our own. You gave us one; we'll give you one. At the worst, we will come out even. At the best, your admittedly brilliant grasp of tactics and strategy will enable us to save thousands of Kerothi lives, to say nothing of the immense savings in time and money."

"All I ask is a chance to prove my ability and my loyalty."

"You've already proven your ability. All of the strategy problems that

you have been given over the past year were actual battles that had already been fought. In eighty-seven per cent of the cases, your strategy proved to be superior to our own. In most of the others, it was just as good. In only three cases was the estimate of your losses higher than the actual losses. Actually, we'd be fools to turn you down. We have everything to gain and nothing to lose."

"I felt the same way a year ago," said MacMaine. "Even being watched all the time will allow me more freedom than I had on Earth—if the Board of Strategy is willing to meet my terms."

Tallis chuckled. "They are. You'll be the best-paid officer in the entire fleet; none of the rest of us gets a tenth of what you'll be getting, as far as personal value is concerned. And yet, it costs us practically nothing. You drive an attractive bargain, Sepastian."

"Is that the kind of pay you'd like to get, Tallis?" MacMaine asked with a smile.

"Why not? You'll get your terms: full pay as a Kerothi general, with retirement on full pay after the war is over. The pick of the most beautiful—by your standards—of the Earthwomen we capture. A home on Keroth, built to your specifications, and full citizenship, including the freedom to enter into any business relationships you wish. If you keep your promises, we can keep ours and still come out ahead."

"Good. When do we start?"

"Now," said Tallis rising from his

chair. "Put on your dress uniform, and we'll go down to see the High Commander. We've got to give you a set of general's insignia, my sibling-by-choice."

Tallis waited while MacMaine donned the blue trousers and gold-trimmed red uniform of a Kerothi officer. When he was through, MacMaine looked at himself in the mirror. "There's one more thing, Tallis," he said thoughtfully.

"What's that?"

"This hair. I think you'd better arrange to have it permanently removed, according to your custom. I can't do anything about the color of my skin, but there's no point in my looking like one of your wild hill-men."

"You're very gracious," Tallis said. "And very wise. Our officers will certainly come closer to feeling that you are one of us."

"I am one of you from this moment," MacMaine said. "I never intend to see Earth again, except, perhaps, from space—when we fight the final battle of the war."

"That may be a hard battle," Tallis said.

"Maybe," MacMaine said thoughtfully. "On the other hand, if my overall strategy comes out the way I think it will, that battle may never be fought at all. I think that complete and total surrender will end the war before we ever get that close to Earth."

"I hope you're right," Tallis said firmly. "This war is costing far more than we had anticipated, in spite of

the weakness of your—that is, of Earth."

"Well," MacMaine said with a slight grin, "at least you've been able to capture enough Earth food to keep me eating well all this time."

Tallis' grin was broad. "You're right. We're not doing too badly at that. Now, let's go; the High Commander is waiting."

MacMaine didn't realize until he walked into the big room that what he was facing was not just a discussion with a high officer, but what amounted to a Court of Inquiry.

The High Commander, a dome-headed, wrinkled, yellow-skinned, hard-eyed old Kerothi, was seated in the center of a long, high desk, flanked on either side by two lower-ranking generals who had the same deadly, hard look. Off to one side, almost like a jury in a jury box, sat twenty or so lesser officers, none of them ranking below the Kerothi equivalent of lieutenant-colonel.

As far as MacMaine could tell, none of the officers wore the insignia of fleet officers, the spaceship-and-comet that showed that the wearer was a fighting man. These were the men of the Permanent Headquarters Staff—the military group that controlled, not only the armed forces of Keroth, but the civil government as well.

"What's this?" MacMaine hissed in a whispered aside, in English.

"Pearr up, my prrotherr," Tallis answered softly, in the same tongue, "all is well."

MacMaine had known, long before he had ever heard of General Polan Tallis, that the Hegemony of Keroth was governed by a military junta, and that all Kerothi were regarded as members of the armed forces. Technically, there were no civilians; they were legally members of the "unorganized reserve," and were under military law. He had known that Kerothi society was, in its own way, as much a slave society as that of Earth, but it had the advantage over Earth in that the system did allow for advance by merit. If a man had the determination to get ahead, and the ability to cut the throat—either literally or figuratively—of the man above him in rank, he could take his place.

On a more strictly legal basis, it was possible for a common trooper to become an officer by going through the schools set up for that purpose, but, in practice, it took both pull and pressure to get into those schools.

In theory, any citizen of the Hegemony could become an officer, and any officer could become a member of the Permanent Headquarters Staff. Actually, a much greater preference was given to the children of officers. Examinations were given periodically for the purpose of recruiting new members for the elite officers' corps, and any citizen could take the examination—once.

But the tests were heavily weighted in favor of those who were already well-versed in matters military, including what might be called

the "inside jokes" of the officers' corps. A common trooper had some chance of passing the examination; a civilian had a very minute chance. A noncommissioned officer had the best chance of passing the examination, but there were age limits which usually kept NCO's from getting a commission. By the time a man became a noncommissioned officer, he was too old to be admitted to the officers training schools. There were allowances made for "extraordinary merit," which allowed common troopers or upper-grade NCO's to be commissioned in spite of the general rules, and an astute man could take advantage of those allowances.

Ability could get a man up the ladder, but it had to be a particular kind of ability.

During his sojourn as a "guest" of the Kerothi, MacMaine had made a point of exploring the history of the race. He knew perfectly well that the histories he had read were doctored, twisted, and, in general, totally unreliable in so far as presenting anything that would be called a history by an unbiased investigator.

But, knowing this, MacMaine had been able to learn a great deal about the present society. Even if the "history" was worthless as such, it did tell something about the attitudes of a society that would make up such a history. And, too, he felt that, in general, the main events which had been catalogued actually occurred; the details had been blurred, and the atti-

tudes of the people had been misrepresented, but the skeleton was essentially factual.

MacMaine felt that he knew what kind of philosophy had produced the mental attitudes of the Court he now faced, and he felt he knew how to handle himself before them.

Half a dozen paces in front of the great desk, the color of the floor tiling was different from that of the rest of the floor. Instead of a solid blue, it was a dead black. Tallis, who was slightly ahead of MacMaine, came to a halt as his toes touched the edge of the black area.

Uh-oh! a balk line, MacMaine thought. He stopped sharply at the same point. Both of them just stood there for a full minute while they were carefully inspected by the members of the Court.

Then the High Commander gestured with one hand, and the officer to his left leaned forward and said: "Why is this one brought before us in the uniform of an officer, bare of any insignia of rank?"

It could only be a ritual question, MacMaine decided; they must know why he was there.

"I bring him as a candidate for admission to our Ingroup," Tallis replied formally, "and ask the indulgence of Your Superiorities therefor."

"And who are you who ask our indulgence?"

Tallis identified himself at length—name, rank, serial number, military record, et cetera, et cetera, et cetera.

By the time he had finished, MacMaine was beginning to think that the recitation would go on forever. The High Commander had closed his eyes, and he looked as if he had gone to sleep.

There was more formality. Through it all, MacMaine stood at rigid attention, flexing his calf muscles occasionally to keep the blood flowing in his legs. He had no desire to disgrace himself by passing out in front of the Court.

Finally the Kerothi officer stopped asking Tallis questions and looked at the High Commander. MacMaine got the feeling that there was about to be a departure from the usual procedure.

Without opening his eyes, the High Commander said, in a brittle, rather harsh voice, "These circumstances are unprecedented." Then he opened his eyes and looked directly at MacMaine. "Never has an animal been proposed for such an honor. In times past, such a proposal would have been mockery of this Court and this Ingroup, and a crime of such monstrous proportions as to merit Excommunication."

MacMaine knew what that meant. The word was used literally; the condemned one was cut off from all communication by having his sensory nerves surgically severed. Madness followed quickly; psychosomatic death followed eventually, as the brain, cut off from any outside stimuli except those which could not be eliminated without death following instantly, finally became incapable of

keeping the body alive. Without feedback, control was impossible, and the organism-as-a-whole slowly deteriorated until death was inevitable.

At first, the victim screamed and thrashed his limbs as the brain sent out message after message to the rest of the body, but since the brain had no way of knowing whether the messages had been received or acted upon, the victim soon went into a state comparable to that of catatonia and finally died.

If it was not the ultimate in punishment, it was a damned close approach, MacMaine thought. And he felt that the word "damned" could be used in that sense without fear of exaggeration.

"However," the High Commander went on, gazing at the ceiling, "circumstances change. It would once have been thought vile that a machine should be allowed to do the work of a skilled man, and the thought that a machine might do the work with more precision and greater rapidity would have been almost blasphemous.

"This case must be viewed in the same light. As we are replacing certain of our workers on our outer planets with Earth animals simply because they are capable of doing the work more cheaply, so we must recognize that the same interests of economy govern in this case.

"A computing animal, in that sense, is in the same class as a computing machine. It would be folly

to waste their abilities simply because they are not human.

"There also arises the question of command. It has been represented to this court, by certain officers who have been active in investigating the candidate animal, that it would be as degrading to ask a human officer to take orders from an animal as it would be to ask him to take orders from a commoner of the Unorganized Reserve, if not more so. And, I must admit, there is, on the surface of it, some basis for this reasoning.

"But, again, we must not let ourselves be misled. Does not a spaceship pilot, in a sense, take orders from the computer that gives him his orbits and courses? In fact, do not all computers give orders, in one way or another, to those who use them?

"Why, then, should we refuse to take orders from a computing animal?"

He paused and appeared to listen to the silence in the room before going on.

"Stand at ease until the High Commander looks at you again," Tallis said in a low aside.

This was definitely the pause for adjusting to surprise.

It seemed interminable, though it couldn't have been longer than a minute later that the High Commander dropped his gaze from the ceiling to MacMaine. When MacMaine snapped to attention again, the others in the room became suddenly silent.

"We feel," the hard-faced old

Kerothi continued, as if there had been no break, "that, in this case, we are justified in employing the animal in question.

"However, we must make certain exceptions to our normal procedure. The candidate is not a machine, and therefore cannot be treated as a machine. Neither is it human, and therefore cannot be treated as human.

"Therefore, this is the judgment of the Court of the Ingroup:

"The animal, having shown itself to be capable of behaving, in some degree, as befits an officer—including, as we have been informed, voluntarily conforming to our custom as regards superfluous hair—it shall henceforth be considered as having the same status as an untaught child or a barbarian, insofar as social conventions are concerned, and shall be entitled to the use of the human pronoun, he.

"Further, he shall be entitled to wear the uniform he now wears, and the insignia of a General of the Fleet. He shall be entitled, as far as personal contact goes, to the privileges of that rank, and shall be addressed as such.

"He will be accorded the right of punishment of an officer of that rank, insofar as disciplining his inferiors is concerned, except that he must first secure the concurrence of his Guardian Officer, as hereinafter provided.

"He shall also be subject to punishment in the same way and for the same offenses as humans of his rank,



taking into account physiological differences, except as hereinafter provided.

"His reward for proper service"—The High Commander listed the demands MacMaine had made—"are deemed fitting, and shall be paid, provided his duties in service are carried out as proposed.

"Obviously, however, certain restrictions must be made. General MacMaine, as he is entitled to be called, is employed solely as a Strategy Computer. His ability as such and his knowledge of the psychology of the Earth animals are, as far as we are concerned at this moment, his only useful attributes. Therefore, his command is restricted to that function. He is empowered to act only through the other officers of the Fleet as this Court may appoint; he is not to command directly.

"Further, it is ordered that he shall have a Guardian Officer, who shall accompany him at all times and shall be directly responsible for his actions.

"That officer shall be punished for any deliberate crime committed by the aforesaid General MacMaine as if he had himself committed the crime.

"Until such time as this Court may appoint another officer for the purpose, General Polan Tallis, previously identified in these proceedings, is appointed as Guardian Officer."

The High Commander paused for a moment, then he said: "Proceed with the investment of the insignia."

The Strategy

General Sebastian MacMaine, sometime Colonel of Earth's Space Force, and presently a General of the Kerothi Fleet, looked at the array of stars that appeared to drift by the main viewplate of his flagship, the blaster-boat *Shudos*.

Behind him, General Tallis was saying, "You've done well, Sepastian. Better than anyone could have really expected. Three battles so far, and every one of them won by a margin far greater than anticipated. Any ideas that anyone may have had that you were not wholly working for the Kerothi cause has certainly been dispelled."

"Thanks, Tallis." MacMaine turned to look at the Kerothi officer. "I only hope that I can keep it up. Now that we're ready for the big push, I can't help but wonder what would happen if I were to lose a battle."

"Frankly," Tallis said, "that would depend on several things, the main one being whether or not it appeared that you had deliberately thrown the advantage to the enemy. But nobody expects you, or anyone else, to win every time. Even the most brilliant commander can make an honest mistake, and if it can be shown that it *was* an honest mistake, and one, furthermore, that he could not have been expected to avoid, he wouldn't be punished for it. In your case, I'll admit that the investigation would be a great deal more thorough than normal, and

that you wouldn't get as much of the benefit of the doubt as another officer might; but unless there is a deliberate error I doubt that anything serious would happen."

"Do you really believe that, Tallis, or is it just wishful thinking on your part, knowing as you do that your punishment will be the same as mine if I fail?" MacMaine asked flatly.

Tallis didn't hesitate. "If I didn't believe it, I would ask to be relieved as your Guardian. And the moment I did that, you would be removed from command. The moment I feel that you are not acting for the best interests of Keroth, I will act—not only to protect myself, but to protect my people."

"That's fair enough," MacMaine said. "But how about the others?"

"I cannot speak for my fellow officers—only for myself." Then Tallis' voice became cold. "Just keep your hands clean, Sepastian, and all will be well. You will not be punished for mistakes—only for crimes. If you are planning no crimes, this worry of yours is needless."

"I ceased to worry about myself long ago," MacMaine said coolly. "I do not fear personal death, not even by Excommunication. My sole worry is about the ultimate outcome of the war if I should fail. That, and nothing more."

"I believe you," Tallis said. "Let us say no more about it. Your actions are difficult for us to understand, in some ways, that's all. No Kerothi would ever change his allegiance as

you have. Nor has any Earth officer that we have captured shown any desire to do so. Oh, some of them have agreed to do almost anything we wanted them to, but these were not the intelligent ones, and even they were only doing it to save their own miserable hides.

"Still, you are an exceptional man, Sepastian, unlike any other of your race, as far as we know. Perhaps it is simply that you are the only one with enough wisdom to seek your intellectual equals rather than remain loyal to a mass of stupid animals who are fit only to be slaves."

"It was because I foresaw their eventual enslavement that I acted as I did," MacMaine admitted. "As I saw it, I had only two choices—to remain as I was and become a slave to the Kerothi or to put myself in your hands willingly and hope for the best. As you—"

He was interrupted by a harsh voice from a nearby speaker.

"Battle stations! Battle stations! Enemy fleet in detector range! Contact in twelve minutes!"

Tallis and MacMaine headed for the Command Room at a fast trot. The three other Kerothi who made up the Strategy Staff came in at almost the same time. There was a flurry of activity as the computers and viewers were readied for action, then the Kerothi looked expectantly at the Earthman.

MacMaine looked at the detector screens. The deployment of the approaching Earth fleet was almost as

he had expected it would be. There were slight differences, but they would require only minor changes in the strategy he had mapped out from the information brought in by the Kerothi scout ships.

Undoubtedly, the Kerothi position had been relayed to the Earth commander by their own advance scouts buzzing about in tiny, one-man shells just small enough to be undetectable at normal range.

Watching the positions on the screens carefully, MacMaine called out a series of numbers in an unhurried voice and watched as the orders, relayed by the Kerothi staff, changed the position of parts of the Kerothi fleet. Then, as the computer-led Earth fleet jockeyed to compensate for the change in the Kerothi deployment, MacMaine called out more orders.

The High Commander of Keroth had called MacMaine a "computing animal," but the term was far from accurate. MacMaine couldn't possibly have computed all the variables in that battle, and he didn't try. It was a matter of human intuition against mechanical logic. The advantage lay with MacMaine, for, while the computer could not logically fathom the intuitive processes of its human opponent, MacMaine could and did have an intuitive grasp of the machine's logic. MacMaine didn't need to know every variable in the pattern; he only needed to know the pattern as a whole.

The *Shudos* was well in the rear of the main body of the Kerothi

fleet. There was every necessity for keeping MacMaine's flagship out of as much of the fighting as possible.

When the first contact was made, MacMaine was certain of the outcome. His voice became a steady drone as he called out instructions to the staff officers; his mind was so fully occupied with the moving pattern before him that he noticed nothing else in the room around him.

Spaceship against spaceship, the two fleets locked in battle. The warheads of ultralight torpedoes flared their eye-searing explosions soundlessly into the void; ships exploded like overcharged beer bottles as blaster energy caught them and smashed through their screens; men and machines flamed and died, scattering the stripped nuclei of their component atoms through the screaming silence of space.

And through it all, Sebastian MacMaine watched dispassionately, calling out his orders as ten Earthmen died for every Kerothi death.

This was a crucial battle. The big push toward the center of Earth's cluster of worlds had begun. Until now, the Kerothi had been fighting the outposts, the planets on the fringes of Earth's sphere of influence which were only lightly colonized, and therefore relatively easy to take. Earth's strongest fleets were out there, to protect planets that could not protect themselves.

Inside that periphery were the more densely populated planets, the

self-sufficient colonies which were more or less able to defend themselves without too much reliance on space fleets as such. But now that the backbone of the Earth's Space Force had been all but broken, it would be a relatively easy matter to mop up planet after planet, since each one could be surrounded separately, pounded into surrender, and secured before going on to the next.

That, at least, had been the original Kerothi intention. But MacMaine had told them that there was another way—a way which, if it succeeded, would save time, lives, and money for the Kerothi. And, if it failed, MacMaine said, they would be no worse off, they would simply have to resume the original plan.

Now, the first of the big colony planets was to be taken. When the protecting Earth fleet was reduced to tatters, the Kerothi would go on to Houston's World as the first step in the big push toward Earth itself.

But MacMaine wasn't thinking of that phase of the war. That was still in the future, while the hellish space battle was still at hand.

He lost track of time as he watched the Kerothi fleet take advantage of their superior tactical position and tear the Earth fleet to bits. Not until he saw the remains of the Earth fleet turn tail and run did he realize that the battle had been won.

The Kerothi fleet consolidated itself. There was no point in pursuing the fleeting Earth ships; that would only break up the solidity of the

Kerothi deployment. The losers could afford to scatter; the winners could not. Early in the war, the Kerothi had used that trick against Earth; the Kerothi had broken and fled, and the Earth fleet had split up to chase them down. The scattered Earth ships had suddenly found that they had been led into traps composed of hidden clusters of Kerothi ships. Naturally, the trick had never worked again for either side.

"All right," MacMaine said when it was all over, "let's get on to Houston's World."

The staff men, including Tallis, were already on their feet, congratulating MacMaine and shaking his hands. Even General Hokotan, the Headquarters Staff man, who had been transferred temporarily to the Fleet Force to keep an eye on both MacMaine and Tallis, was enthusiastically pounding MacMaine's shoulder.

No one aboard was supposed to know that Hokotan was a Headquarters officer, but MacMaine had spotted the spy rather easily. There was a difference between the fighters of the Fleet and the politicoes of Headquarters. The politicoes were no harder, perhaps, nor more ruthless, than the fighters, but they were of a different breed. Theirs was the ruthlessness of the bully who steps on those who are weaker rather than the ruthlessness of the man who kills only to win a battle. MacMaine had the feeling that the Headquarters Staff preferred to spend their time browbeating their underlings rather

than risk their necks with someone who could fight back, however weakly.

General Hokotan seemed to have more of the fighting quality than most HQ men, but he wasn't a Fleet Officer at heart. He couldn't be compared to Tallis without looking small and mean.

As a matter of cold fact, very few of the officers were in anyway comparable to Tallis—not even the Fleet men. The more MacMaine learned of the Kerothi, the more he realized just how lucky he had been that it had been Tallis, and not some other Kerothi general, who had been captured by the Earth forces. He was not at all sure that his plan would have worked at all with any of the other officers he had met.

Tallis, like MacMaine, was an unusual specimen of his race.

MacMaine took the congratulations of the Kerothi officers with a look of pleasure on his face, and when they had subsided somewhat, he grinned and said:

"Let's get a little work done around here, shall we? We have a planet to reduce yet."

They laughed. Reducing a planet didn't require strategy—only firepower. The planet-based defenses couldn't maneuver, but the energy reserve of a planet is greater than that of any fleet, no matter how large. Each defense point would have to be cut down individually by the massed power of the fleet, cut down one by one until the planet

was helpless. The planet as a whole might have more energy reserve than the fleet, but no individual defense point did. The problem was to avoid being hit by the rest of the defense points while one single point was bearing the brunt of the fleet's attack. It wasn't without danger, but it could be done.

And for a job like that, MacMaine's special abilities weren't needed. He could only watch and wait until it was over.

So he watched and waited. Unlike the short-time fury of a space battle, the reduction of a planet took days of steady pounding. When it was over, the blaster-boats of the Kerothi fleet and the shuttles from the great battle-cruisers landed on Houston's World and took possession of the planet.

MacMaine was waiting in his cabin when General Hokotan brought the news that the planet was secured.

"They are ours," the HQ spy said with a superior smile. "The sniveling animals didn't even seem to want to defend themselves. They don't even know how to fight a hand-to-hand battle. How could such things have ever evolved intelligence enough to conquer space?" Hokotan enjoyed making such remarks to MacMaine's face, knowing that since MacMaine was technically a Kerothi he couldn't show any emotion when the enemy was insulted.

MacMaine showed none. "Got them all, eh?" he said.

"All but a few who scattered into the hills and forests. But not many of them had the guts to leave the security of their cities, even though we were occupying them."

"How many are left alive?"

"An estimated hundred and fifty million, more or less."

"Good. That should be enough to set an example. I picked Houston's World because we can withdraw from it without weakening our position; its position in space is such that it would constitute no menace to us even if we never reduced it. That way, we can be sure that our little message is received on Earth."

Hokotan's grin was wolfish. "And the whole weak-hearted race will shake with fear, eh?"

"Exactly. Tallis can speak English well enough to be understood. Have him make the announcement to them. He can word it however he likes, but the essence is to be this: Houston's World resisted the occupation by Kerothi troops; an example must be made of them to show them what happens to Earthmen who resist."

"That's all?"

"That's enough. Oh, by the way, make sure that there are plenty of their cargo spaceships in good working order; I doubt that we've ruined them all, but if we have, repair some of them."

"And, too, you'd better make sure that you allow some of the merchant spacemen to 'escape,' just in case there are no space pilots among those who took to the hills. We

want to make sure that someone can use those ships to take the news back to Earth."

"And the rest?" Hokotan asked, with an expectant look. He knew what was to be done, but he wanted to hear MacMaine say it again.

MacMaine obliged.

"Hang them. Every man, every woman, every child. I want them to be decorating every lamppost and roof-beam on the planet, dangling like overripe fruit when the Earth forces return."

The Results

"I don't understand it," said General Polan Tallis worriedly. "Where are they coming from? How are they doing it? What's happened?"

MacMaine and the four Kerothi officers were sitting in the small dining room that doubled as a recreation room between meals. The nervous strain of the past few months was beginning to tell on all of them.

"Six months ago," Tallis continued jerkily, "we had them beaten. One planet after another was reduced in turn. Then, out of nowhere, comes a fleet of ships we didn't even know existed, and they've smashed us at every turn."

"If they *are* ships," said Loopat, the youngest officer of the *Shudos* staff. "Who ever heard of a battleship that was undetectable at a distance of less than half a million miles? It's impossible!"

"Then we're being torn to pieces by the impossible!" Hokotan

snapped. "Before we even know they are anywhere around, they are blasting us with everything they've got! Not even the strategic genius of General MacMaine can help us if we have no time to plot strategy!"

The Kerothi had been avoiding MacMaine's eyes, but now, at the mention of his name, they all looked at him as if their collective gaze had been drawn to him by some unknown attractive force.

"It's like fighting ghosts," MacMaine said in a hushed voice. For the first time, he felt a feeling of awe that was almost akin to fear. What had he done?

In another sense, that same question was in the mind of the Kerothi.

"Have you any notion at all what they are doing or how they are doing it?" asked Tallis gently.

"None," MacMaine answered truthfully. "None at all, I swear to you."

"They don't even behave like Earthmen," said the fourth Kerothi, a thick-necked officer named Ossif. "They not only outfight us, they outthink us at every turn. Is it possible, General MacMaine, that the Earthmen have allies of another race, a race of intelligent beings that we don't know of?" He left unsaid the added implication: "*And that you have neglected to tell us about?*"

"Again," said MacMaine, "I swear to you that I know nothing of any third intelligent race in the galaxy."

"If there were such allies," Tallis said, "isn't it odd that they should wait so long to aid their friends?"

"No odder than that the Earthmen should suddenly develop superweapons that we cannot understand, much less fight against," Hokotan said, with a touch of anger.

"Not 'superweapons,'" MacMaine corrected almost absently. "All they have is a method of making their biggest ships undetectable until they're so close that it doesn't matter. When they do register on our detectors, it's too late. But the weapons they strike with are the same type as they've always used," I believe."

"All right, then," Hokotan said, his voice showing more anger. "One weapon or whatever you want to call it. Practical invisibility. But that's enough. An invisible man with a knife is more deadly than a dozen ordinary men with modern armament. Are you sure you know nothing of this, General MacMaine?"

Before MacMaine could answer, Tallis said, "Don't be ridiculous, Hokotan! If he had known that such a weapon existed, would he have been fool enough to leave his people? With that secret, they stand a good chance of beating us in less than half the time it took us to wipe out their fleet—or, rather, to wipe out as much of it as we did."

"They got a new fleet somewhere," said young Loopat, almost to himself.

Tallis ignored him. "If MacMaine deserted his former allegiance, knowing that they had a method of rendering the action of a space

drive undetectable, then he was and is a blithering idiot. And we know he isn't."

"All right, all right! I concede that," snapped Hokotan. "He knows nothing. I don't say that I fully trust him, even now, but I'll admit that I cannot see how he is to blame for the reversals of the past few months.

"If the Earthmen had somehow been informed of our activities, or if we had invented a superweapon and they found out about it, I would be inclined to put the blame squarely on MacMaine. But—"

"How would he get such information out?" Tallis cut in sharply. "He has been watched every minute of every day. We know he couldn't send any information to Earth. How could he?"

"Telepathy, for all I know!" Hokotan retorted. "But that's beside the point! I don't trust him any farther than I can see him, and not completely, even then. But I concede that there is no possible connection between this new menace and anything MacMaine might have done.

"This is no time to worry about that sort of thing; we've got to find some way of getting our hands on one of those ghost ships!"

"I do suggest," put in the thick-necked Ossif, "that we keep a closer watch on General MacMaine. Now that the Earth animals are making a comeback, he might decide to turn his coat now, even if he has been innocent of any acts against Keroth so far."

Hokotan's laugh was a short, hard bark. "Oh, we'll watch him, all right, Ossif. But, as Tallis has pointed out, MacMaine is not a fool, and he would certainly be a fool to return to Earth if his leaving it was a genuine act of desertion. The last planet we captured, before this invisibility thing came up to stop us, was plastered all over with notices that the Earth fleet was concentrating on the capture of the arch-traitor MacMaine.

"The price on his head, as a corpse, is enough to allow an Earthman to retire in luxury for life. The man who brings him back alive gets ten times that amount.

"Of course, it's possible that the whole thing is a put-up job—a smoke screen for our benefit. That's why we must and will keep a closer watch. But only a few of the Earth's higher-up would know that it was a smoke screen; the rest believe it, whether it is true or not. MacMaine would have to be very careful not to let the wrong people get their hands on him if he returned."

"It's no smoke screen," MacMaine said in a matter-of-fact tone. "I assure you that I have no intention of returning to Earth. If Keroth loses this war, then I will die—either fighting for the Kerothi or by execution at the hands of Earthmen if I am captured. Or," he added musingly, "perhaps even at the hands of the Kerothi, if someone decides that a scapegoat is needed to atone for the loss of the war."

"If you are guilty of treason,"

Hokotan barked, "you will die as a traitor! If you are not, there is no need for your death. The Kerothi do not need scapegoats!"

"Talk, talk, talk!" Tallis said with a sudden bellow. "We have agreed that MacMaine has done nothing that could even remotely be regarded as suspicious! He has fought hard and loyally; he has been more ruthless than any of us in destroying the enemy. Very well, we will guard him more closely. We can put him in irons if that's necessary.

"But let's quit yapping and start thinking! We've been acting like frightened children, not knowing what it is we fear, and venting our fear-caused anger on the most handy target!

"Let's act like men—not like children!"

After a moment, Hokotan said: "I agree." His voice was firm, but calm. "Our job will be to get our hands on one of those new Earth ships. Anyone have any suggestions?"

They had all kinds of suggestions, one after another. The detectors, however, worked because they detected the distortion of space which was as necessary for the drive of a ship as the distortion of air was necessary for the movement of a propeller-driven aircraft. None of them could see how a ship could avoid making that distortion, and none of them could figure out how to go about capturing a ship that no one could even detect until it was too late to set a trap.

The discussion went on for days. And it was continued the next day and the next. And the days dragged out into weeks.

Communications with Keroth broke down. The Fleet-to-Headquarters courier ships, small in size, without armament, and practically solidly packed with drive mechanism, could presumably outrun anything but another unarmed courier. An armed ship of the same size would have to use some of the space for her weapons, which meant that the drive would have to be smaller; if the drive remained the same size, then the armament would make the ship larger. In either case, the speed would be cut down. A smaller ship might outrun a standard courier, but if they got much smaller, there wouldn't be room inside for the pilot.

Nonetheless, courier after courier never arrived at its destination.

And the Kerothi Fleet was being decimated by the hit-and-run tactics of the Earth's ghost ships. And Earth never lost a ship; by the time the Kerothi ships knew their enemy was in the vicinity, the enemy had hit and vanished again. The Kerothi never had a chance to ready their weapons.

In the long run, they never had a chance at all.

MacMaine waited with almost fatalistic complacency for the inevitable to happen. When it did happen, he was ready for it.

The *Shudos*, tiny flagship of what

had once been a mighty armada and was now only a tattered remnant, was floating in orbit, along with the other remaining ships of the fleet, around a bloated red-giant sun. With their drives off, there was no way of detecting them at any distance, and the chance of their being found by accident was microscopically small. But they could not wait forever. Water could be recirculated, and energy could be tapped from the nearby sun, but food was gone once it was eaten.

Hokotan's decision was inevitable, and, under the circumstances, the only possible one. He simply told them what they had already known—that he was a Headquarters Staff officer.

"We haven't heard from Headquarters in weeks," he said at last. "The Earth fleet may already be well inside our periphery. We'll have to go home." He produced a document which he had obviously been holding in reserve for another purpose and handed it to Tallis. "Headquarters Staff Orders, Tallis. It empowers me to take command of the Fleet in the event of an emergency, and the decision as to what constitutes an emergency was left up to my discretion. I must admit that this is not the emergency any of us at Headquarters anticipated."

Tallis read through the document. "I see that it isn't," he said dryly. "According to this, MacMaine and I are to be placed under immediate arrest as soon as you find it necessary to act."

"Yes," said Hokotan bitterly. "So you can both consider yourselves under arrest. Don't bother to lock yourselves up—there's no point in it. General MacMaine, I see no reason to inform the rest of the Fleet of this, so we will go on as usual. The orders I have to give are simple: The Fleet will head for home by the most direct possible geodesic. Since we cannot fight, we will simply ignore attacks and keep going as long as we last. We can do nothing else." He paused thoughtfully.

"And, General MacMaine, in case we do not live through this, I would like to extend my apologies. I do not like you; I don't think I could ever learn to like an anim . . . to like a non-Kerothi. But I know when to admit an error in judgment. You have fought bravely and well—better, I know, than I could have done myself. You have shown yourself to be loyal to your adopted planet; you are a Kerothi in every sense of the word except the physical. My apologies for having wronged you."

He extended his hands and MacMaine took them. A choking sensation constricted the Earthman's throat for a moment, then he got the words out—the words he had to say. "Believe me, General Hokotan, there is no need for an apology. No need whatever."

"Thank you," said Hokotan. Then he turned and left the room.

"All right, Tallis," MacMaine said hurriedly, "let's get moving."

The orders were given to the

remnants of the Fleet, and they cut in their drives to head homeward. And the instant they did, there was chaos. Earth's fleet of "ghost ships" had been patrolling the area for weeks, knowing that the Kerothi fleet had last been detected somewhere in the vicinity. As soon as the spatial distortions of the Kerothi drives flashed on the Earth ships' detectors, the Earth fleet, widely scattered over the whole circumambient volume of space, coalesced toward the center of the spatial disturbance like a cloud of bees all heading for the same flower.

Where there had been only the dull red light of the giant star, there suddenly appeared the blinding, blue-white brilliance of disintegrating matter, blossoming like cruel, deadly, beautiful flowers in the midst of the Kerothi ships, then fading slowly as each expanding cloud of plasma cooled.

Sebastian MacMaine might have died with the others except that the *Shudos*, as the flagship, was to trail behind the fleet, so her drive had not yet been activated. The *Shudos* was still in orbit, moving at only a few miles per second when the Earth fleet struck.

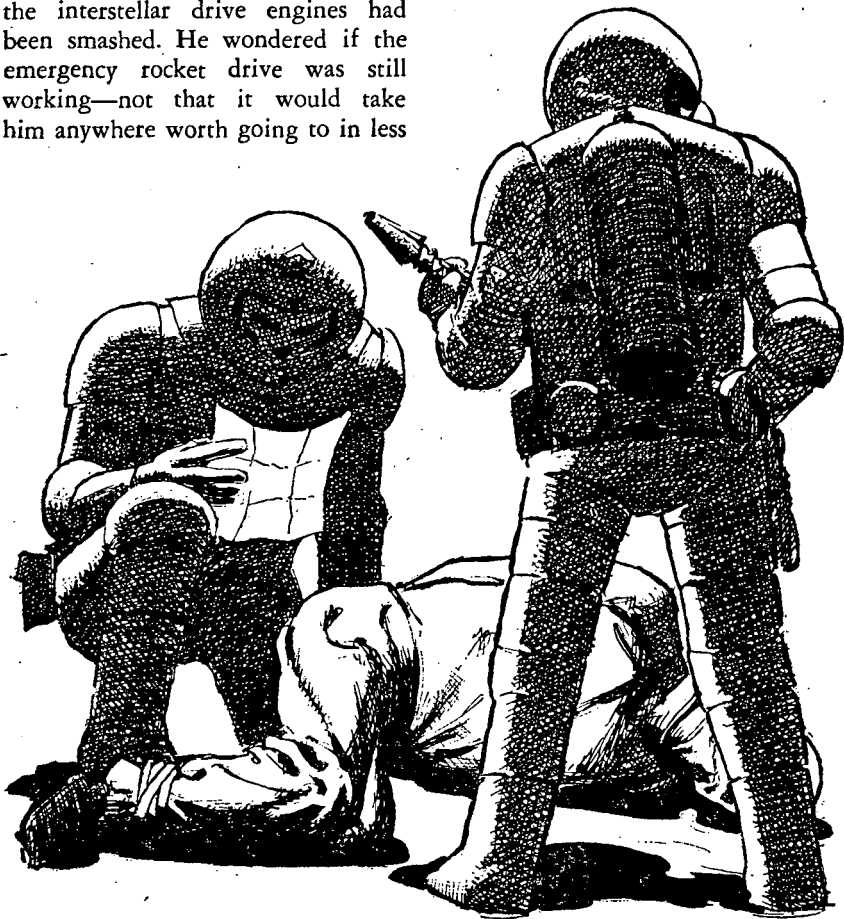
Her drive never did go on. A bomb, only a short distance away as the distance from atomic disintegration is measured, sent the *Shudos* spinning away, end over end, like a discarded cigar butt flipped toward a gutter, one side caved in near the rear, as if it had been kicked in by a giant foot.

There was still air in the ship, MacMaine realized groggily as he awoke from the unconsciousness that had been thrust upon him. He tried to stand up, but he found himself staggering toward one crazily-slanted wall. The stagger was partly due to his grogginess, and partly due to the Coriolis forces acting within the spinning ship. The artificial gravity was gone, which meant that the interstellar drive engines had been smashed. He wondered if the emergency rocket drive was still working—not that it would take him anywhere worth going to in less

than a few centuries. But, then, Sebastian MacMaine had nowhere to go, anyhow.

Tallis lay against one wall, looking very limp. MacMaine half staggered over to him and knelt down. Tallis was still alive.

The centrifugal force caused by the spinning ship gave an effective pull of less than one Earth gravity,



but the weird twists caused by the Coriolis forces made motion and orientation difficult. Besides, the ship was spinning slightly on her long axis as well as turning end-for-end.

MacMaine stood there for a moment, trying to think. He had expected to die. Death was something he had known was inevitable from the moment he made his decision to leave Earth. He had not known how or when it would come, but he had known that it would come soon. He had known that he would never live to collect the reward he had demanded of the Kerothi for "faithful service." Traitor he might be, but he was still honest enough with himself to know that he would never take payment for services he had not rendered.

Now death was very near, and Sebastian MacMaine almost welcomed it. He had no desire to fight it. Tallis might want to stand and fight death to the end, but Tallis was not carrying the monstrous weight of guilt that would stay with Sebastian MacMaine until his death, no matter how much he tried to justify his actions.

On the other hand, if he had to go, he might as well do a good job of it. Since he still had a short time left, he might as well wrap the whole thing up in a neat package. How?

Again, his intuitive ability to see pattern gave him the answer long before he could have reasoned it out.

They will know, he thought, but they will never be sure they know. I will be immortal. And my name will

live forever, although no Earthman will ever again use the surname MacMaine or the given name Sebastian.

He shook his head to clear it. No use thinking like that now. There were things to be done.

Tallis first. MacMaine made his way over to one of the emergency medical kits that he knew were kept in every compartment of every ship. One of the doors of a wall locker hung open, and the blue-green medical symbol used by the Kerothi showed darkly in the dim light that came from the three unshattered glow plates in the ceiling. He opened the kit, hoping that it contained something equivalent to adhesive tape. He had never inspected a Kerothi medical kit before. Fortunately, he could read Kerothi. If a military government was good for nothing else, at least it was capable of enforcing a simplified phonetic orthography so that words were pronounced as they were spelled. And—

He forced his wandering mind back to his work. The blow on the head, plus the crazy effect the spinning was having on his inner ears, plus the cockeyed gravitational orientation that made his eyes feel as though they were seeing things at two different angles, all combined to make for more than a little mental confusion.

There was adhesive tape, all right. Wound on its little spool, it looked almost homey. He spent several minutes winding the sticky plastic rib-

bon around Tallis' wrists and ankles.

Then he took the gun from the Kerothi general's sleeve holster—he had never been allowed one of his own—and, holding it firmly in his right hand, he went on a tour of the ship.

It was hard to move around. The centrifugal force varied from point to point throughout the ship, and the corridors were cluttered with debris that seemed to move with a life of its own as each piece shifted slowly under the effects of the various forces working on it. And, as the various masses moved about, the rate of spin of the ship changed as the law of conservation of angular momentum operated. The ship was full of sliding, clattering, jangling noises as the stuff tried to find a final resting place and bring the ship to equilibrium.

He found the door to Ossif's cabin open and the room empty. He found Ossif in Loopat's cabin, trying to get the younger officer to his feet.

Ossif saw MacMaine at the door and said: "You're alive! Good! Help me—" Then he saw the gun in MacMaine's hand and stopped. It was the last thing he saw before MacMaine shot him neatly between the eyes.

Loopat, only half conscious, never even knew he was in danger, and the blast that drilled through his brain prevented him from ever knowing anything again in this life.

Like a man in a dream, MacMaine went on to Hokotan's cabin, his weapon at the ready. He was rather

pleased to find that the HQ general was already quite dead, his neck broken as cleanly as if it had been done by a hangman. Hardly an hour before, MacMaine would cheerfully have shot Hokotan where it would hurt the most and watch him die slowly. But the memory of Hokotan's honest apology made the Earthman very glad that he did not have to shoot the general at all.

There remained only the five-man crew, the NCO technician and his gang, who actually ran the ship. They would be at the tail of the ship, in the engine compartment. To get there, he had to cross the center of spin of the ship, and the change of gravity from one direction to another, decreasing toward zero, passing the null point, and rising again on the other side, made him nauseous. He felt better after his stomach had emptied itself.

Cautiously, he opened the door to the drive compartment and then slammed it hard in sudden fear when he saw what had happened. The shielding had been torn away from one of the energy converters and exposed the room to high-energy radiation. The crewmen were quite dead.

The fear went away as quickly as it had come. So maybe he'd dosed himself with a few hundred Roentgens—so what? A little radiation never hurt a dead man.

But he knew now that there was no possibility of escape. The drive was wrecked, and the only other means of escape, the one-man cour-

ier boat that every blaster-boat carried, had been sent out weeks ago and had never returned.

If only the courier boat were still in its cradle—

MacMaine shook his head. No. It was better this way. Much better.

He turned and went back to the dining cabin where Tallis was trussed up. This time, passing the null-gee point didn't bother him much at all.

Tallis was moaning a little and his eyelids were fluttering by the time MacMaine got back. The Earthman opened the medical kit again and looked for some kind of stimulant. He had no knowledge of medical or chemical terms in Kerothic, but there was a box of glass ampoules bearing instructions to "crush and allow patient to inhale fumes." That sounded right.

The stuff smelled like a mixture of spirits of ammonia and butyl mercaptan, but it did the job. Tallis coughed convulsively, turned his head away, coughed again, and opened his eyes. MacMaine tossed the stinking ampoule out into the corridor as Tallis tried to focus his eyes.

"How do you feel?" MacMaine asked. His voice sounded oddly thick in his own ears.

"All right. I'm all right. What happened?" He looked wonderingly around. "Near miss? Must be. Any-one hurt?"

"They're all dead but you and me," MacMaine said.

"Dead? Then we'd better—" He tried to move and then realized that he was bound hand and foot. The sudden realization of his position seemed to clear his brain completely. "Sepastian, what's going on here? Why am I tied up?"

"I had to tie you," MacMaine explained carefully, as though to a child. "There are some things I have to do yet, and I wouldn't want you to stop me. Maybe I should have just shot you while you were unconscious. That would have been kinder to both of us, I think. But . . . but, Tallis, I had to tell somebody. Someone else has to know. Someone else has to judge. Or maybe I just want to unload it on someone else, someone who will carry the burden with me for just a little while. I don't know."

"Sepastian, what are you talking about?" The Kerothi's face shone dully orange in the dim light, his bright green eyes looked steadily at the Earthman, and his voice was oddly gentle.

"I'm talking about treason," said MacMaine. "Do you want to listen?"

"I don't have much choice, do I?" Tallis said. "Tell me one thing first: Are we going to die?"

"You are, Tallis. But I won't. I'm going to be immortal."

Tallis looked at him for a long moment. Then, "All right, Sepastian. I'm no psych man, but I know you're not well. I'll listen to whatever you have to say. But first, untie my hands and feet.

"I can't do that, Tallis. Sorry. But

if our positions were reversed, I know what I would do to you when I heard the story. And I can't let you kill me, because there's something more that has to be done."

Tallis knew at that moment that he was looking at the face of Death. And he also knew that there was nothing whatever he could do about it. Except talk. And listen.

"Very well, Sepastian," he said levelly. "Go ahead. Treason, you say? How? Against whom?"

"I'm not quite sure," said Sebastian MacMaine. "I thought maybe you could tell me."

The Reason

"Let me ask you one thing, Tallis," MacMaine said. "Would you do anything in your power to save Keroth from destruction? Anything, no matter how drastic, if you knew that it would save Keroth in the long run?"

"A foolish question. Of course I would. I would give my life."

"Your life? A mere nothing. A pittance. Any man could give his life. Would you consent to live forever for Keroth?"

Tallis shook his head as though he were puzzled. "Live forever? That's twice or three times you've said something about that. I *don't* understand you."

"Would you consent to live forever as a filthy curse on the lips of every Kerothi old enough to speak? Would you consent to be a vile, inhuman monster whose undead spirit

would hang over your homeland like an evil miasma for centuries to come, whose very name would touch a flame of hatred in the minds of all who heard it?"

"That's a very melodramatic way of putting it," the Kerothi said, "but I believe I understand what you mean. Yes, I would consent to that if it would be the only salvation of Keroth."

"Would you slaughter helpless millions of your own people so that other billions might survive? Would you ruthlessly smash your system of government and your whole way of life if it were the only way to save the people themselves?"

"I'm beginning to see what you're driving at," Tallis said slowly. "And if it is what I think it is, I think I would like to kill you—very slowly."

"I know, I know. But you haven't answered my question. Would you do those things to save your people?"

"I would," said Tallis coldly. "Don't misunderstand me. I do not loathe you for what you have done to your own people; I hate you for what you have done to mine."

"That's as it should be," said MacMaine. His head was clearing up more now. He realized that he had been talking a little wildly at first. Or was he really insane? Had he been insane from the beginning? No. He knew with absolute clarity that every step he had made had been cold, calculating, and ruthless, but utterly and absolutely sane.

He suddenly wished that he had shot Tallis without waking him.

If his mind hadn't been in such a state of shock, he would have. There was no need to torture the man like this.

"Go on," said Tallis, in a voice that had suddenly become devoid of all emotion. "Tell it all."

"Earth was stagnating," MacMaine said, surprised at the sound of his own voice. He hadn't intended to go on. But he couldn't stop now. "You saw how it was. Every standard had become meaningless because no standard was held to be better than any other standard. There was no beauty because beauty was superior to ugliness and we couldn't allow superiority or inferiority. There was no love because in order to love someone or something you must feel that it is in some way superior to that which is not loved. I'm not even sure I know what those terms mean, because I'm not sure I ever thought anything was beautiful, I'm not sure I ever loved anything. I only read about such things in books. But I know I felt the emptiness inside me where those things should have been.

"There was no morality, either. People did not refrain from stealing because it was wrong, but simply because it was pointless to steal what would be given to you if you asked for it. There was no right or wrong.

"We had a form of social contract that we called 'marriage,' but it wasn't the same thing as marriage was in the old days. There was no love. There used to be a crime called 'adultery,' but even the word had gone out of use on the Earth I knew.

Instead, it was considered antisocial for a woman to refuse to give herself to other men; to do so might indicate that she thought herself superior or thought her husband to be superior to other men. The same thing applied to men in their relationships with women other than their wives. Marriage was a social contract that could be made or broken at the whim of the individual. It served no purpose because it meant nothing, neither party gained anything by the contract that they couldn't have had without it. But a wedding was an excuse for a gala party at which the couple were the center of attention. So the contract was entered into lightly for the sake of a gay time for a while, then broken again so that the game could be played with someone else—the game of Musical Bedrooms."

He stopped and looked down at the helpless Kerothi. "That doesn't mean much to you, does it? In your society, women are chattel, to be owned, bought, and sold. If you see a woman you want, you offer a price to her father or brother or husband—whoever the owner might be. Then she's yours until you sell her to another. Adultery is a very serious crime on Kerothi, but only because it's an infringement of property rights. There's not much love lost there, either, is there?

"I wonder if either of us knows what love is, Tallis?"

"I love my people," Tallis said grimly.

MacMaine was startled for a mo-

ment. He'd never thought about it that way. "You're right, Tallis," he said at last. "You're right. We *do* know. And because I loved the human race, in spite of its stagnation and its spirit of total mediocrity, I did what I had to do."

"You will pardon me," Tallis said, with only the faintest bit of acid in his voice, "if I do not understand exactly what it is that you did." Then his voice grew softer. "Wait. Perhaps I do understand. Yes, of course."

"You think you understand?" MacMaine looked at him narrowly.

"Yes. I said that I am not a psychomedic, and my getting angry with you proves it. You fought hard and well for Keroth, Sepastian, and, in doing so, you had to kill many of your own race. It is not easy for a man to do, no matter how much your reason tells you it *must* be done. And now, in the face of death, remorse has come. I do not completely understand the workings of the Earthman's mind, but I—"

"That's just it; you don't," MacMaine interrupted. "Thanks for trying to find an excuse for me, Tallis, but I'm afraid it isn't so. Listen."

"I had to find out what Earth was up against. I had a pretty good idea already that the Kerothi would win—would wipe us out or enslave us to the last man. And, after I had seen Keroth, I was certain of it. So I sent a message back to Earth, telling them what they were up against, because, up 'til then they hadn't known. As soon as they knew, they reacted

as they have always done when they are certain that they face danger. They fought. They unleashed the chained-down intelligence of the few extraordinary Earthmen, and they released the fighting spirit of even the ordinary Earthmen. And they won!"

Tallis shook his head. "You sent no message, Sepastian. You were watched. You know that. You could not have sent a message."

"You saw me send it," MacMaine said. "So did everyone else in the fleet. Hokotan helped me send it—made all the arrangements at my orders. But because you do not understand the workings of the Earthman's mind, you didn't even recognize it as a message."

"Tallis, what would your people have done if an invading force, which had already proven that it could whip Keroth easily, did to one of your planets what we did on Houston's World?"

"If the enemy showed us that they could easily beat us and then hanged the whole population of a planet for resisting? Why, we would be fools to resist. Unless, of course, we had a secret weapon in a hidden pocket, the way Earth had."

"No, Tallis; no. That's where you're making your mistake. Earth didn't have that weapon until *after* the massacre on Houston's World. Let me ask you another thing: Would any Kerothi have ordered that massacre?"

"I doubt it," Tallis said slowly. "Killing that many potential slaves

would be wasteful and expensive. We are fighters, not butchers. We kill only when it is necessary to win; the remainder of the enemy is taken care of as the rightful property of the conqueror."

"Exactly. Prisoners were part of the loot, and it's foolish to destroy loot. I noticed that in your history books. I noticed, too, that in such cases, the captives recognized the right of the conqueror to enslave them, and made no trouble. So, after Earth's forces get to Kerothi, I don't think we'll have any trouble with you."

"Not if they set us an example like Houston's World," Tallis said, "and can prove that resistance is futile. But I don't understand the message. What was the message and how did you send it?"

"The massacre on Houston's World was the message, Tallis. I even told the Staff, when I suggested it. I said that such an act would strike terror into the minds of Earthmen."

"And it did, Tallis; it did. But that terror was just the goad they needed to make them fight. They had to sit up and take notice. If the Kerothi had gone on the way they were going, taking one planet after another, as they planned, the Kerothi would have won. The people of each planet would think, 'It can't happen here.' And, since they felt that nothing could be superior to anything else, they were complacently certain that they couldn't be beat. Of course, maybe Earth couldn't

beat you, either, but that was all right; it just proved that there was no such thing as superiority.

"But Houston's World jarred them—badly. It had to. 'Hell does more than Heaven can to wake the fear of God in man.' They didn't recognize beauty, but I shoved ugliness down their throats; they didn't know love and friendship, so I gave them hatred and fear. *

"The committing of atrocities has been the mistake of aggressors throughout Earth's history. "The battle cries of countless wars have called upon the people to remember an atrocity. Nothing else hits an Earthman as hard as a vicious, brutal, unnecessary murder.

"So I gave them the incentive to fight, Tallis. That was my message."

Tallis was staring at him wide eyed. "You *are* insane."

"No. It worked. In six months, they found something that would enable them to blast the devil Kerothi from the skies. I don't know what the society of Earth is like now—and I never will. But at least I know that men are allowed to think again. And I know they'll survive."

He suddenly realized how much time had passed. Had it been too long? No. There would still be Earth ships prowling the vicinity, waiting for any sign of a Kerothi ship that had hidden in the vastness of space by not using its engines.

"I have some things I must do, Tallis," he said, standing up slowly. "Is there anything else you want to know?"

Tallis frowned a little, as though he were trying to think of something, but then he closed his eyes and relaxed. "No, Sepastian. Nothing. Do whatever it is you have to do."

"Tallis," MacMaine said. Tallis didn't open his eyes, and MacMaine was very glad of that. "Tallis, I want you to know that, in all my life, you were the only friend I ever had."

The bright green eyes remained closed. "That may be so. Yes, Sepastian, I honestly think you believe that."

"I do," said MacMaine, and shot him carefully through the head.

The End

—and Epilogue.

"Hold it!" The voice bellowed thunderingly from the loud-speakers of the six Earth ships that had boxed in the derelict. "Hold it! *Don't bomb that ship!* I'll personally have the head of any man who damages that ship!"

In five of the ships, the commanders simply held off the bombardment that would have vaporized the derelict. In the sixth, Major Thornton, the Group Commander, snapped off the microphone. His voice was shaky as he said: "That was close! Another second, and we'd have lost that ship forever."

Captain Verenski's Oriental features had a half-startled, half-puzzled look. "I don't get it. You grabbed that mike control as if you'd been bitten. I know that she's only a dere-

lict. After that burst of fifty-gee acceleration for fifteen minutes, there couldn't be anyone left alive on her. But there must have been a reason for using atomic rockets instead of their antiacceleration fields. What makes you think she's not dangerous?"

"I didn't say she wasn't dangerous," the major snapped. "She may be. Probably is. But we're going to capture her if we can. Look!" He pointed at the image of the ship in the screen.

She wasn't spinning now, or looping end-over-end. After fifteen minutes of high acceleration, her atomic rockets had cut out, and now she moved serenely at constant velocity, looking as dead as a battered tin can.

"I don't see anything," Captain Verenski said.

"The Kerothic symbols on the side. Palatal unvoiced sibilant, rounded—"

"I don't read Kerothic, major," said the captain. "I—" Then he blinked and said, "*Shudos!*"

"That's it. The *Shudos* of Keroth. The flagship of the Kerothi Fleet."

The look in the major's eyes was the same look of hatred that had come into the captain's.

"Even if its armament is still functioning, we have to take the chance," Major Thornton said. "Even if they're all dead, we have to try to get The Butcher's body." He picked up the microphone again.

"Attention, Group. Listen carefully and don't get itchy trigger fingers. That ship is the *Shudos*. The

Butcher's ship. It's a ten-man ship, and the most she could have aboard would be thirty, even if they jammed her full to the hull. I don't know of any way that anyone could be alive on her after fifteen minutes at fifty gees of atomic drive, but remember that they don't have any idea of how our counteraction generators damp out spatial distortion either. Remember what Dr. Pendric said: 'No man is superior to any other in *all* ways.

* Every man is superior to every other in *some* way.' We may have the counteraction generator, but they may have something else that we don't know about. So stay alert.

"I am going to take a landing-party aboard. There's a reward out for The Butcher, and that reward will be split proportionately among us. It's big enough for us all to enjoy it, and we'll probably get citations if we bring him in.

"I want ten men from each ship. I'm not asking for volunteers; I want each ship commander to pick the ten men he thinks will be least likely to lose their heads in an emergency. I don't want anyone to panic and shoot when he should be thinking. I don't want anyone who had any relatives on Houston's World. Sorry, but I can't allow vengeance yet.

"We're a thousand miles from the *Shudos* now; close in slowly until we're within a hundred yards. The boarding parties will don armor and prepare to board while we're closing in. At a hundred yards, we stop and the boarding parties will land on

the hull. I'll give further orders then.

"One more thing. I don't think her A-A generators could possibly be functioning, judging from that dent in her hull, but we can't be sure. If she tries to go into A-A drive, she is to be bombed—no matter who is aboard. It is better that sixty men die than that The Butcher escape.

"All right, let's go. Move in."

Half an hour later, Major Thornton stood on the hull of the *Shudos*, surrounded by the sixty men of the boarding party. "Anybody see anything through those windows?" he asked.

Several of the men had peered through the direct-vision ports, playing spotlight beams through them.

"Nothing alive," said a sergeant, a remark which was followed by a chorus of agreement.

"Pretty much of a mess in there," said another sergeant. "That fifty gees mashed everything to the floor. Why'd anyone want to use acceleration like that?"

"Let's go in and find out," said Major Thornton.

The outer door to the air lock was closed, but not locked. It swung open easily to disclose the room between the outer and inner doors. Ten men went in with the major, the others stayed outside with orders to cut through the hull if anything went wrong.

"If he's still alive," the major said, "we don't want to kill him by blow-

ing the air. Sergeant, start the air-lock cycle."

There was barely room for ten men in the air lock. It had been built big enough for the full crew to use it at one time, but it was only just big enough.

When the inner door opened, they went in cautiously. They spread out and searched cautiously. The caution was unnecessary, as it turned out. There wasn't a living thing aboard.

"Three officers shot through the head, sir," said the sergeant. "One of 'em looks like he died of a broken neck, but it's hard to tell after that fifty gees mashed 'em. Crewmen in the engine room—five of 'em. Mashed up, but I'd say they died of radiation, since the shielding on one of the generators was ruptured by the blast that made that dent in the hull."

"Nine bodies," the major said musingly. "All Kerothi. And all of them probably dead *before* the fifty-gee acceleration. Keep looking, sergeant. We've got to find the tenth man."

Another twenty-minute search gave them all the information they were ever to get.

"No Earth food aboard," said the major. "One spacesuit missing. Handweapons missing. Two emergency survival kits and two medical kits missing. *And*—most important of all—the courier boat is missing." He bit at his lower lip for a moment, then went on. "Outer air lock

door left unlocked. Three Kerothi shot—*after* the explosion that ruined the A-A drive, and *before* the fifty-gee acceleration." He looked at the sergeant. "What do you think happened?"

"He got away," the tough-looking noncom said grimly. "Took the courier boat and scooted away from here."

"Why did he set the timer on the drive, then? What was the purpose of that fifty-gee blast?"

"To distract us, I'd say, sir. While we were chasing this thing, he high-tailed it out."

"He might have, at that," the major said musingly. "A one-man courier *could* have gotten away. Our new detection equipment isn't perfect yet. But—"

At that moment, one of the troopers pushed himself down the corridor toward them. "Look, sir! I found this in the pocket of the Carrot-skin who was taped up in there!" He was holding a piece of paper.

The major took it, read it, then read it aloud. "Greetings, fellow Earthmen: When you read this, I will be safe from any power you may think you have to arrest or punish me. But don't think *you* are safe from *me*. There are other intelligent races in the galaxy, and I'll be around for a long time to come. You haven't heard the last of me. With love—Sebastian MacMaine."

The silence that followed was almost deadly.

"He *did* get away!" snarled the sergeant at last.

"Maybe," said the major. "But it doesn't make sense." He sounded agitated. "Look. In the first place, how do we know the courier boat was even aboard? They've been trying frantically to get word back to Keroth; does it make sense that they'd save this boat? And why all the fanfare? Suppose he did have a boat? Why would he attract our attention with that fifty-gee flare? Just so he could leave us a note?"

"What do you think happened, sir?" the sergeant asked.

"I don't think he had a boat. If he did, he'd want us to think he was dead, not the other way around. I think he set the drive timer on this ship, went outside with his supplies, crawled up a drive tube and waited until that atomic rocket blast blew him into plasma. He was probably badly wounded and didn't want us to know that we'd won. That way, we'd never find him."

There was no belief on the faces of the men around him.

"Why'd he want to do that, sir?" asked the sergeant.

"Because as long as we don't *know*, he'll haunt us. He'll be like Hitler or Jack the Ripper. He'll be an immortal menace instead of a dead villain who could be forgotten."

"Maybe so, sir," said the sergeant, but there was an utter lack of conviction in his voice. "But we'd still better comb this area and keep our detectors hot. We'll know what he was up to when we catch him."

"But if we *don't* find him," the major said softly, "we'll *never* know. That's the beauty of it, sergeant. If we don't find him, then he's won. In his own fiendish, twisted way, he's won."

"If we don't find him," said the sergeant stolidly, "I think we better keep a sharp eye out for the next intelligent race we meet. He might find 'em first."

"Maybe," said the major very softly, "that's just what he wanted. I wish I knew why."

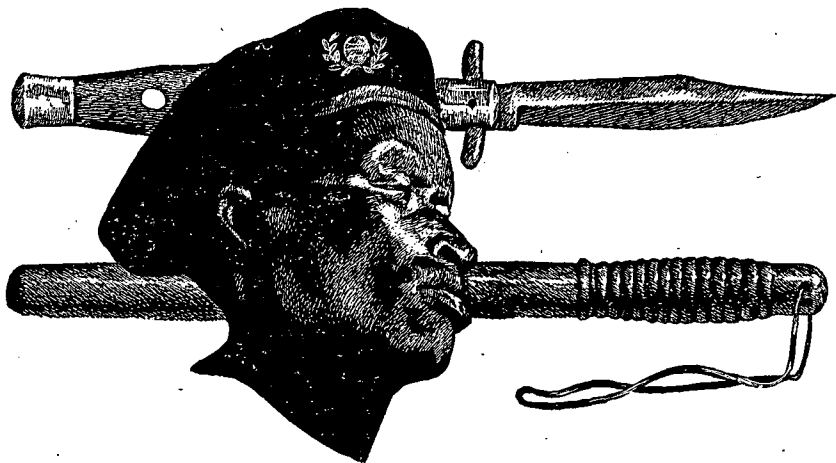
THE END

IN TIMES TO COME

E. B. Cole's new yarn, "The Weakling," is quite deliberately laid simply "elsewhen, elsewhere"; it may be twenty megayears ago, or kiloyears hence, and kiloparsecs distant. It makes no difference; anywhere and anywhen machines can equalize the strength of all men—but not the deeper strength that makes a midget a Man and a gorilla a powerful monkey.

Continued on page 69

THE



GREEN BERET

By **TOM PURDOM**

*It's not so much the decisions
a man does make that mark
him as a Man—but the ones
he refrains from making. Like
the decision "I've had enough!"*

Illustrated by Schoenherr



READ locked the door and drew his pistol. Sergeant Rashid handed Premier Umluana the warrant. "We're from the UN Inspector Corps," Sergeant Rashid said. "I'm very sorry, but we have to arrest you and bring you in for trial by the World Court."

If Umluana noticed Read's gun, he didn't show it. He read the warrant carefully. When he finished, he said something in Dutch.

"I don't know your language," Rashid said.

"Then I'll speak English." Umluana was a small man with wrinkled brow, glasses and a mustache. His skin was a shade lighter than Read's. "The Inspector General doesn't have the power to arrest a head of state—especially the Premier of Belderkan. Now, if you'll excuse me, I must return to my party."

In the other room people laughed and talked. Glasses clinked in the late afternoon. Read knew two armed men stood just outside the door. "If you leave, Premier, I'll have to shoot you."

"I don't think so," Umluana said. "No, if you kill me, all Africa will rise against the world. You don't want me dead. You want me in court."

Read clicked off the safety.

"Corporal Read is very young," Rashid said, "but he's a crack shot. That's why I brought him with me. I think he *likes* to shoot, too."

Umluana turned back to Rashid a second too soon. He saw the ser-

geant's upraised hand before it collided with his neck.

"Help! *Kidnap.*"

Rashid judo chopped him and swung the inert body over his shoulders. Read pulled a flat grenade from his vest pocket. He dropped it and yellow psycho gas hissed from the valve.

"Let's be off," Rashid said.

The door lock snapped as they went out the window. Two men with rifles plunged into the gas; sighing, they fell to the floor in a catatonic trance.

A little car skimmed across the lawn. Bearing the Scourge of Africa, Rashid struggled toward it. Read walked backward, covering their retreat.

The car stopped, whirling blades holding it a few inches off the lawn. They climbed in.

"How did it go?" The driver and another inspector occupied the front seat.

"They'll be after us in half a minute."

The other inspector carried a light machine gun and a box of grenades. "I better cover," he said.

"Thanks," Rashid said.

The inspector slid out of the car and ran to a clump of bushes. The driver pushed in the accelerator. As they swerved toward the south, Read saw a dozen armed men run out of the house. A grenade arced from the bushes and the pursuers recoiled from the cloud that rose before them.

"Is he all right?" the driver asked.

"I don't think I hurt him." Rashid

took a syrette from his vest pocket. "Well, Read, it looks like we're in for a fight. In a few minutes Miaka Station will know we're coming. And God knows what will happen at the Game Preserve."

Read wanted to jump out of the car. He could die any minute. But he had set his life on a well-oiled track and he couldn't get off until they reached Geneva.

"They don't know who's coming," he said. "They don't make them tough enough to stop this boy."

Staring straight ahead, he didn't see the sergeant smile.

Two types of recruits are accepted by the UN Inspector Corps: those with a fanatic loyalty to the ideals of peace and world order, and those who are loyal to nothing but themselves. Read was the second type.

A tall, lanky Negro he had spent his school days in one of the drab suburbs that ring every prosperous American city. It was the home of factory workers, clerks, semiskilled technicians, all who do the drudge work of civilization and know they will never do more. The adults spent their days with television, alcohol and drugs; the young spent their days with gangs, sex, television and alcohol. What else was there? Those who could have told him neither studied nor taught at his schools. What he saw on the concrete fields between the tall apartment houses marked the limits of life's possibilities.

He had belonged to a gang called The Golden Spacemen. "Nobody

fools with me," he bragged. "When Harry Read's out, there's a tiger running loose." No one knew how many times he nearly ran from other clubs, how carefully he picked the safest spot on the battle line.

"A man ought to be a man," he once told a girl. "He ought to do a man's work. Did you ever notice how our fathers look, how they sleep so much? I don't want to be like that. I want to be something proud."

He joined the UN Inspector Corps at eighteen, in 1978. The international cops wore green berets, high buttonless boots, bush jackets. They were very special men.

For the first time in his life, his father said something about his ambitions.

"Don't you like America, Harry? Do you *want* to be without a country? This is the best country in the world. All my life I've made a good living. Haven't you had everything you ever wanted? I've been a king compared to people overseas. Why, you stay here and go to trade school and in two years you'll be living just like me."

"I don't want that," Read said.

"What do you mean, you don't want that?"

"You could join the American Army," his mother said. "That's as good as a trade school. If you have to be a soldier."

"I want to be a UN man. I've already enlisted. I'm in! What do you care what I do?"

The UN Inspector Corps had been founded to enforce the Nuclear Dis-

armament Treaty of 1966. Through the years it had acquired other jobs. UN men no longer went unarmed. Trained to use small arms and gas weapons, they guarded certain borders, bodyguarded diplomats and UN officials, even put down riots that threatened international peace. As the UN evolved into a strong world government, the UN Inspector Corps steadily acquired new powers.

Read went through six months training on Madagascar.

Twice he nearly got expelled for picking fights with smaller men. Rather than resign, he accepted punishment which assigned him to weeks of dull, filthy extra labor. He hated the restrictions and the iron fence of regulations. He hated boredom, loneliness and isolation.

And yet he responded with enthusiasm. They had given him a job. A job many people considered important.

He took his turn guarding the still disputed borders of Korea. He served on the rescue teams that patrol the busy Polar routes. He mounted guard at the 1980 World's Fair in Rangoon.

"I liked Rangoon," he even told a friend. "I even liked Korea. But I think I liked the Pole job best. You sit around playing cards and shooting the bull and then there's a plane crash or something and you go out and win a medal. That's great for me. I'm lazy and I like excitement."

One power implied in the UN Charter no Secretary General or Inspector General had ever tried to use.

The power to arrest any head of state whose country violated international law. Could the World Court try and imprison a politician who had conspired to attack another nation?

For years Africa had been called "The South America of the Old World." Revolution followed revolution. Colonies became democracies. Democracies became dictatorships or dissolved in civil war. Men planted bases on the moon and in four years, 1978-82, ringed the world with matter transmitters; but the black population of Africa still struggled toward political equality.

Umluana took control of Belderkan in 1979. The tiny, former Dutch colony, had been a tottering democracy for ten years. The very day he took control the new dictator and his African party began to build up the Belderkan Army. For years he had preached a new Africa, united, free of white masters, the home of a vigorous and perfect Negro society. His critics called him a hypocritical racist, an opportunist using the desires of the African people to build himself an empire.

He began a propaganda war against neighboring South Africa, promising the liberation of that strife-torn land. Most Negro leaders, having just won representation in the South African Parliament, told him to liberate his own country. They believed they could use their first small voice in the government to win true freedom for their people.

But the radio assault and the arms buildup continued. Early in 1982,

South Africa claimed the Belderkan Army exceeded the size agreed to in the Disarmament Treaty. The European countries and some African nations joined in the accusation. China called the uproar a vicious slur on a new African nation. The United States and Russia, trying not to get entangled, asked for more investigation by the UN.

But the evidence was clear. Umluana was defying world law. If he got away with it, some larger and more dangerous nation might follow his precedent. And the arms race would begin again.

The Inspector General decided. They would enter Belderkan, arrest Umluana and try him by due process before the World Court. If the plan succeeded, mankind would be a long step farther from nuclear war.

Read didn't know much about the complicated political reasons for the arrest. He liked the Corp and he liked being in the Corp. He went where they sent him and did what they told him to do.

The car skimmed above the tree-tops. The driver and his two passengers scanned the sky.

A plane would have been a faster way to get out of the country. But then they would have spent hours flying over Africa, with Belderkan fighters in hot pursuit, other nations joining the chase and the world uproar gaining volume. By transmitter, if all went well, they could have Umluana in Geneva in an hour.

They were racing toward Miaka,

a branch transmitter station. From Miaka they would transmit to the Belderkan Preserve, a famous tourist attraction whose station could transmit to any point on the globe. Even now a dozen inspectors were taking over the Game Preserve station and manning its controls.

They had made no plans to take over Miaka. They planned to get there before it could be defended.

"There's no military base near Miaka," Rashid said. "We might get there before the Belderkans."

"Here comes our escort," Read said.

A big car rose from the jungle. This one had a recoilless rifle mounted on the roof. The driver and the gunner waved and fell in behind them.

"One thing," Read said, "I don't think they'll shoot at us while *he's* in the car."

"Don't be certain, corporal. All these strong-arm movements are alike. I'll bet Umluana's lieutenants are hoping he'll become a dead legend. Then they can become live conquerors."

Sergeant Rashid came from Cairo. He had degrees in science and history from Cambridge but only the Corp gave him work that satisfied his conscience. He hated war. It was that simple.

Read looked back. He saw three spots of sunlight about two hundred feet up and a good mile behind.

"Here they come, Sarge."

Rashid turned his head. He waved frantically. The two men in the other car waved back.

"Shall I duck under the trees?" the driver asked.

"Not yet. Not until we have to."

Read fingered the machine gun he had picked up when he got in the car. He had never been shot at. Twice he had faced an unarmed mob, but a few shots had sent them running.

Birds flew screaming from their nests. Monkeys screeched and threw things at the noisy, speeding cars. A little cloud of birds surrounded each vehicle.

The escort car made a sharp turn and charged their pursuers. The big rifle fired twice. Read saw the Belderkan cars scatter. Suddenly machine-gun bullets cracked and whined beside him.

"Evade," Rashid said. "Don't go down."

Without losing any forward speed, the driver took them straight up. Read's stomach bounced.

A shell exploded above them. The car rocked. He raised his eyes and saw a long crack in the roof.

"Hit the floor," Rashid said.

They knelt on the cramped floor. Rashid put on his gas mask and Read copied him. Umluana breathed like a furnace, still unconscious from the injection Rashid had given him.

I can't do anything, Read thought. They're too far away to shoot back. All we can do is run.

The sky was clear and blue. The jungle was a noisy bazaar of color. In the distance guns crashed. He listened to shells whistle by and the whipcrack of machine-gun bullets. The car roller-coastered up and down.

Every time a shell passed, he crawled in waves down his own back.

Another explosion, this time very loud.

Rashid raised his eyes above the seat and looked out the rear window. "Two left. Keep down, Read."

"Can't we go down?" Read said.

"They'll get to Miaka before us."

He shut his eyes when he heard another loud explosion.

Sergeant Rashid looked out the window again. He swore bitterly in English and Egyptian. Read raised his head. The two cars behind them weren't fighting each other. A long way back the treetops burned.

"How much farther?" Rashid said. The masks muffled their voices.

"There it is now. Shall I take us right in?"

"I think you'd better."

The station was a glass diamond in a small clearing. The driver slowed down, then crashed through the glass walls and hovered by the transmitter booth.

Rashid opened the door and threw out two grenades. Read jumped out and the two of them struggled toward the booth with Umluana. The driver, pistol in hand, ran for the control panel.

There were three technicians in the station and no passengers. All three panicked when the psycho gas enveloped them. They ran howling for the jungle.

Through the window of his mask, Read saw their pursuers land in the clearing. Machine-gun bullets raked

the building. They got Umluana in the booth and hit the floor. Read took aim and opened fire on the largest car.

"Now, I can shoot back," he said. "Now we'll see what they do."

"Are you ready, Rashid?" yelled the driver.

"Man, get us out of here!"

The booth door shut. When it opened, they were at the Game Preserve.

The station jutted from the side of a hill. A glass-walled waiting room surrounded the bank of transmitter booths. Read looked out the door and saw his first battlefield.

Directly in front of him, his head shattered by a bullet, a dead inspector lay behind an overturned couch.

Read had seen dozens of training films taken during actual battles or after atomic attacks. He had laughed when other recruits complained. "That's the way this world is. You people with the weak stomachs better get used to it."

Now he slid against the rear wall of the transmitter booth.

A wounded inspector crawled across the floor to the booth. Read couldn't see his wound, only the pain scratched on his face and the blood he deposited on the floor.

"Did you get Umluana?" he asked Sergeant Rashid.

"He's in the booth. What's going on?" Rashid's Middle East Oxford seemed more clipped than ever.

"They hit us with two companies of troops a few minutes ago. I think half our men are wounded."

"Can we get out of here?"

"They machine-gunned the controls."

Rashid swore. "You heard him, Read! Get out there and help those men."

He heard the screams of the wounded, the crack of rifles and machine guns, all the terrifying noise of war. But since his eighteenth year he had done everything his superiors told him to do.

He started crawling toward an easy-chair that looked like good cover. A bullet cracked above his head, so close he felt the shock wave. He got up, ran panicky, crouched, and dove behind the chair.

An inspector cracked the valve on a smoke grenade. A white fog spread through the building. They could see anyone who tried to rush them but the besiegers couldn't pick out targets.

Above the noise, he heard Rashid.

"I'm calling South Africa Station for a copter. It's the only way out of here. Until it comes, we've got to hold them back."

Read thought of the green beret he had stuffed in his pocket that morning. He stuck it on his head and cocked it. He didn't need plain clothes anymore and he wanted to wear at least a part of his uniform.

Bullets had completely shattered the wall in front of him. He stared through the murk, across the broken glass. He was Corporal Harry Read, UN Inspector Corps—a very special man. If he didn't do a good job here, he wasn't the man he claimed to be.

This might be the only real test he would ever face.

He heard a shout in rapid French. He turned to his right. Men in red loincloths ran zigzagging toward the station. They carried light automatic rifles. Half of them wore gas masks.

"Shoot the masks," he yelled. "Aim for the masks."

The machine gun kicked and chattered on his shoulder. He picked a target and squeezed off a burst. Tensely, he hunted for another mask. Three grenades arced through the air and yellow gas spread across the battlefield. The attackers ran through it. A few yards beyond the gas, some of them turned and ran for their own lines. In a moment only half a dozen masked men still advanced. The inspectors fired a long, noisy volley. When they stopped only four attackers remained on their feet. And they were running for cover.

The attackers had come straight up a road that led from the Game Preserve to the station. They had not expected any resistance. The UN men had already taken over the station, chased out the passengers and technicians and taken up defense positions; they had met the Belderkans with a dozen grenades and sent them scurrying for cover. The fight so far had been vicious but disorganized. But the Belderkans had a few hundred men and knew they had wrecked the transmitter controls.

The first direct attack had been repulsed. They could attack many more times and continue to spray the build-

ing with bullets. They could also try to go around the hill and attack the station from above; if they did, the inspectors had a good view of the hill and should see them going up.

The inspectors had taken up good defensive positions. In spite of their losses, they still had enough firepower to cover the area surrounding the station.

Read surveyed his sector of fire. About two hundred yards to his left, he saw the top of a small ditch. Using the ditch for cover, the Belderkans could sneak to the top of the hill.

Gas grenades are only three inches long. They hold cubic yards of gas under high pressure. Read unclipped a telescoping rod from his vest pocket. He opened it and a pair of sights flipped up. A thin track ran down one side.

He had about a dozen grenades left, three self-propelling. He slid an SP grenade into the rod's track and estimated windage and range. Sighting carefully, not breathing, muscles relaxed, the rod rock steady, he fired and lobbed the little grenade into the ditch. He dropped another grenade beside it.

The heavy gas would lie there for hours.

Sergeant Rashid ran crouched from man to man. He did what he could to shield the wounded.

"Well, corporal, how are you?"

"Not too bad, sergeant. See that ditch out there? I put a little gas in it."

"Good work. How's your ammunition?"

"A dozen grenades. Half a barrel of shells."

"The copter will be here in half an hour. We'll put Umluana on, then try to save ourselves. Once he's gone, I think we ought to surrender."

"How do you think they'll treat us?"

"That we'll have to see."

An occasional bullet cracked and whined through the misty room. Near him a man gasped frantically for air. On the sunny field a wounded man screamed for help.

"There's a garage downstairs," Rashid said. "In case the copter doesn't get here on time, I've got a man filling wine bottles with gasoline."

"We'll stop them, Sarge. Don't worry."

Rashid ran off. Read stared across the green land and listened to the pound of his heart. What were the Belderkans planning? A mass frontal attack? To sneak in over the top of the hill?

He didn't think, anymore than a rabbit thinks when it lies hiding from the fox or a panther thinks when it crouches on a branch above the trail. His skin tightened and relaxed on his body.

"Listen," said a German.

Far down the hill he heard the deep-throated rumble of a big motor.

"Armor," the German said.

The earth shook. The tank rounded the bend. Read watched the squat, angular monster until its stubby gun pointed at the station. It stopped less than two hundred yards away.

A loud-speaker blared.

ATTENTION UN SOLDIERS.
ATTENTION UN SOLDIERS.
YOU MAY THINK US SAVAGES
BUT WE HAVE MODERN WEAP-
ONS. WE HAVE ATOMIC WAR-
HEADS, ALL GASES, ROCKETS
AND FLAME THROWERS. IF
YOU DO NOT SURRENDER
OUR PREMIER, WE WILL DE-
STROY YOU.

"They know we don't have any big weapons," Read said. "They know we have only gas grenades and small arms."

He looked nervously from side to side. They couldn't bring the copter in with that thing squatting out there.

A few feet away, sprawled behind a barricade of tables, lay a man in advanced shock. His deadly white skin shone like ivory. They wouldn't even look like that. One nuclear shell from that gun and they'd be vaporized. Or perhaps the tank had sonic projectors; then the skin would peel off their bones. Or they might be burned, or cut up by shrapnel, or gassed with some new mist their masks couldn't filter.

Read shut his eyes. All around him he heard heavy breathing, mumbled comments, curses. Clothes rustled as men moved restlessly.

But already the voice of Sergeant Rashid resounded in the murky room.

"We've got to knock that thing out before the copter comes. Otherwise, he can't land. I have six Molotov cocktails here. Who wants to go hunting with me?"

For two years Read had served

under Sergeant Rashid. To him, the sergeant was everything a UN inspector should be. Rashid's devotion to peace had no limits.

Read's psych tests said pride alone drove him on. That was good enough for the UN; they only rejected men whose loyalties might conflict with their duties. But an assault on the tank required something more than a hunger for self-respect.

Read had seen the inspector who covered their getaway. He had watched their escort charge three-to-one odds. He had seen another inspector stay behind at Miaka Station. And here, in this building, lay battered men and dead men.

All UN inspectors. All part of his life.

And he was part of their life. Their blood, their sacrifice, and pain, had become a part of him.

"I'll take a cocktail, Sarge."

"Is that Read?"

"Who else did you expect?"

"Nobody. Anybody else?"

"I'll go," the Frenchman said. "Three should be enough. Give us a good smoke screen."

Rashid snapped orders. He put the German inspector in charge of Umluana. Read, the Frenchman and himself, he stationed at thirty-foot intervals along the floor.

"Remember," Rashid said. "We have to knock out that gun."

Read had given away his machine gun. He held a gas-filled bottle in each hand. His automatic nestled in its shoulder holster.

Rashid whistled.

Dozens of smoke grenades tumbled through the air. Thick mist engulfed the tank. Read stood up and ran forward. He crouched but didn't zigzag. Speed counted most here.

Gunfire shook the hill. The Beldekans couldn't see them but they knew what was going on and they fired systematically into the smoke.

Bullets ploughed the ground beside him. He raised his head and found the dim silhouette of the tank. He tried not to think about bullets ploughing through his flesh.

A bullet slammed into his hip. He fell on his back, screaming. "Sarge. Sarge."

"I'm hit, too," Rashid said. "Don't stop if you can move."

Listen to him. What's he got, a sprained ankle?

But he didn't feel any pain. He closed his eyes and threw himself onto his stomach. And nearly fainted from pain. He screamed and quivered. The pain stopped. He stretched out his hands, gripping the wine bottles, and inched forward. Pain stabbed him from stomach to knee.

"I can't move, Sarge."

"Read, you've got to. I think you're the only—"

"What?"

Guns clattered. Bullets cracked.

"Sergeant Rashid! Answer me."

He heard nothing but the lonely passage of the bullets in the mist.

"I'm a UN man," he mumbled. "You people up there know what a UN man is? You know what happens when you meet one?"

When he reached the tank, he had another bullet in his right arm. But they didn't know he was coming and when you get within ten feet of a tank; the men inside can't see you.

He just had to stand up and drop the bottle down the gun barrel. That was all—with a broken hip and a wounded right arm.

He knew they would see him when he stood up but he didn't think about that. He didn't think about Sergeant Rashid, about the complicated politics of Africa, about crowded market streets. He had to kill the tank. That was all he thought about. He had decided something in the world was more important than himself, but he didn't know it or realize the psychologists would be surprised to see him do this. He had made many decisions in the last few minutes. He had ceased to think about them or anything else.

With his cigarette lighter, he lit the rag stuffed in the end of the bottle.

Biting his tongue, he pulled him-

self up the front of the tank. His long arm stretched for the muzzle of the gun. He tossed the bottle down the dark throat.

As he fell, the machine-gun bullets hit him in the chest, then in the neck. He didn't feel them. He had fainted the moment he felt the bottle leave his hand.

The copter landed ten minutes later. Umluana left in a shower of bullets. A Russian private, the ranking man alive in the station, surrendered the survivors to the Belderkans.

His mother hung the Global Medal above the television set.

"He must have been brave," she said. "We had a fine son."

"He was our only son," her husband said. "What did he volunteer for? Couldn't somebody else have done it?"

His wife started to cry. Awkwardly, he embraced her. He wondered what his son had wanted that he couldn't get at home.

THE END

Continued from page 58

And it makes no difference whether the machines used are chemical engines, nuclear devices, or psionic amplifiers—a weakling remains a weakling, no matter how fortified, amplified, or educated.

The real danger is very simple: a strong Man, no matter how great the powers he has, does not begin to compare with an amplified, fortified and educated weakling for sheer, hellish deadliness!

The Editor.

The Psi Lodge had their ways and means of applying pressure, when pressure was needed. But the peculiar talent this fellow showed was one that even they'd never heard of . . .!

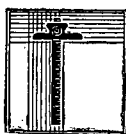
. . . . CARD



...TRICK

By
WALTER
BUPP

Illustrated by Douglas



HE game was stud. There were seven at the table, which makes for good poker. Outside of Nick, who banked the game, nobody looked familiar. They all had the beat look of compulsive gamblers, fogged over by their individual attempts at a poker face. They were a cagey-looking lot. Only one of them was within ten years of my age.

"Just in case, gamblers," the young one said. I looked up from stacking the chips I had just bought from Nick. The speaker was a skinny little guy with a sharp chin and more freckles than I'd like to have.

"If any one of you guys has any psi powers," the sharp-chinned gambler said sourly, "you better beat it. All gamblers here will recoup double their losses from any snake we catch using psi powers to beat the odds."

He shot a hard eyed look around a room not yet dimmed by cigar smoke. I got the most baleful glare, I thought. He didn't need to worry. I'd been certified Normal by an expert that very evening.

The expert was Dr. Shari King, whom I had taken to dinner before joining the game at Nick's. It had gotten to be a sort of weekly date—although this night had given signs of being the last one. For a while that spring, deoxyribonucleic acid had begun to take second place in my heart. This is a pitiful admission for a biochemist to make—DNA should be the cornerstone of his life.

But Shari was something rare—a gorgeous woman, if somewhat distant, who was thoroughly intelligent. She had already earned her doctorate, while I was still struggling with the tag ends of my thesis.

"Poker, Tex?" Shari had asked, when the waitress was bringing dessert. "Is this becoming a problem? You've played every night this week."

"No problem, Shari," I said. "I'm winning, and I see no point in not pocketing all that found money."

"Compulsive gambling is a sickness," she said, looking at me thoughtfully. She was wearing a shirtwaist and skirt that had the bright colors and fullness you associate with peasant dress.

"The only sick thing about me is my bank account," I grinned, relishing her dark, romantic quality. "I need the dough, Shari. I've got a thesis to finish if I ever want to get a job teaching."

Her thick eyebrows fluttered upward, a danger signal I had learned to look for. "That's a childish rationalization, Tex," she said with a lot more sharpness than I had expected. "There are certainly other ways to get money!"

"So I'm not as smart as you," I told her.

"Smart?" She didn't think I was tracking.

"I wasn't as shrewd as you were in picking my parents," I said. "Mine never had much, and left me less than that when they died."

She threw her spoon to the table.

"I'll remind you of how silly these remarks sound, after you've hit a losing streak," she told me.

I laughed at that one. "I don't lose, Shari," I said. "And I don't intend to."

Her lashes veiled her violet eyes as she smiled and said more quietly, "Then you are in even worse trouble than I thought. I hear a lot about what happens to these strange people who never lose at cards or at dice or at roulette. Aren't you afraid of winding up in the gutter with your throat slit? Isn't that what happens to people with psi powers who gamble?" she insisted. "What's your trick, Tex? Do you stack the deck with telekinesis, or does precognition tell you what's about to be dealt?"

"That crack isn't considered very funny in Texas," I growled.

"Is it any more silly for me to think you might be a psi personality than for you to think you never lose at cards?" she nailed me.

I could feel my face getting red. "Damn it!" I started. "Nobody talks to a friend like that!"

"Pretty convincing proof!" Shari said tartly.

"Of what?"

"Of the fact that you aren't making any sense about this gambling kick you're on, Tex. You should have laughed my teasing off. Who would seriously suggest that *you* were a psi personality?" she demanded. "And most of all, with my background in psi, do you think I could be misled about it?"

I shrugged, trying to cool down.

Shari's doctorate had been earned with a startling thesis on psi phenomena and psi personalities, and she had stayed on at Columbia as a research fellow in the field. In egg-head circles, she rated as a psi expert, all right.

"Guess not," I said, trying to kill the subject.

She wasn't going to let it die. "I don't think you're a psi, Tex. You're a Normal!" The way she said it, it didn't sound like a compliment. "Worse than that," she insisted. "You're beginning to act like a compulsive gambler." She took a deep breath, and let me have the clincher: "I could never marry a gambler, Tex!"

"You've never been asked," I reminded her.

She had the last word. "Let's go!" she snapped.

Angry as I was about her acting as though I were a snake, I wished I could have thrown her certification that I was a Normal in the freckled face of the sharp-chinned gambler at Nick's later that night. After Shari's needling, I didn't take very kindly to his popping off with the Law of the Pack. It's understood wherever people gamble that psis aren't welcome.

Nick didn't like it any better than I did. "All right, Lefty," he said to the sharp-chinned gambler. "Calm down, huh, kid? What kinda game you think I run, huh?"

I didn't let the sour start spoil my game. I was lucky right from the

start and hit big in several hands.

Lefty, the gambler who had yelped about psi powers at the game, dealt the tenth hand. He gave me the eight of spades in the hole. By the fourth card I had three other spades showing, which gave me four-fifths of a rare flush in stud poker. But by the fourth card Lefty had given himself a pair of jacks. That drove all the other gamblers to cover.

Lefty raised, of course, and it cost me five hundred bucks to see my fifth card. It was a classic kind of stand-off in stud, and the waiter stopped with his tray of drinks to press in among the other kibitzers and watch the pay-off.

Lefty shucked out the last two cards carelessly, as if they didn't really matter. His own fifth card made no difference—his jacks already had a busted flush beaten. His smile was just a little too sharp as he tossed me my last card face up and reached for the pot with the same left-handed gesture.

I took the poker panatella out of my teeth. "All blue," I said, turning up my hole card with the other hand.

Lefty threw the unused part of the deck to the center of the table. "That does it, you snake!" he swore at me.

It took a second for his accusation to sink in. I started across the table after him. If they hadn't stopped me, I would have torn his lying throat out. Funny, but there were kibitzers on my shoulders before I could rise an inch out of my chair.

"Down in Texas you could get shot for a crack like that, Lefty!" I said. I guess I really yelled it.

"And in New York you can, and probably will, get your rotten throat slit for a trick like the one *you* just pulled," he replied. He turned to the other gamblers, most of whom had their hands on the edge of the table, ready to jump to their feet if it got any rougher.

"I stacked the deck this last deal," he said coolly. He held a palm up at their surprised mutter. "Tex's fifth card was stacked to be a heart, gamblers. You saw him get a spade and take the pot. I won't sit at the same table with a guy that can do that. Telekinesis has no place in poker."

"Pretty near as bad as stacked decks," one of the gamblers rasped. But the others weren't with him. I only had to take one look at Nick's face.

I stood up slowly, and the hands on my shoulders didn't hold me down any longer. "Lefty says he stacked the deck," I told them. "I say he lies. You know there's nothing to choose between our statements. Lefty is a cheap grandstander, and I'll settle with him myself. Nick, I won't embarrass you tonight. This isn't your fault. But I'll be here tomorrow night, and you had better be glad to see me!"

"Sure, Tex," he said uncomfortably, rising with me. "Take my seat, Shorty," he directed one of the kibitzers. He walked around to grab me by the elbow and steer me as far away from Lefty's truculent face as

he could. At least the sharp-chinned little rat had quit the game, too. Both of us had left our chips on the table.

Nick wanted me to leave. "Pay me off," I insisted. He said yes a lot quicker than I thought he would. The other gamblers could have squawked that my chips should go into the next pot, but apparently none of them did.

Lefty sidled out as Nick was paying me off. "Wait outside for me," I said to him.

"Why not?" he said, sticking his chin out at me and walking out.

Nick grabbed me again. "Don't get hot, Tex," he warned me. "I don't want a killing on my own sidewalk. Take it some place else, huh, kid?"

"Sure," I said.

There wasn't any danger Lefty would hang around. I was big enough to break him in two, which is exactly what I planned if I caught up with him.

It had been dark for some hours by the time I hit the street and waved for a skim-copter. Nick's games start late.

"You asked me to wait," somebody said. I spun around and saw Lefty standing in the alleyway beside the building. I went for him, charging hard. He scuttled back into the alley, out of what little light there was that far downtown. Just as I reached for him, somebody slugged me in the gut. I went down on a knee, gasping. I hadn't seen his side-

kick—the alley was pretty dark. I heard Lefty's breath suck in sharply as I came up out of my crouch, diving for him. After all, it was only pain, something inside my head. It wasn't as though I had been really crippled. My fingers clawed at his jacket, and would have held him. But the other guy grabbed at my ankle and threw me down on the slippery cobbles again.

I came up slower that time. I'd bunged up my kneecap more than I wanted to think about. Lefty was still out of reach. I called him a name that was always good for a fight in Texas, and started after him, but slower than before. I wasn't fast enough to avoid the hard thing that rammed against my spine. Even down in Texas, a gun in the back freezes you up.

Lefty was all guts now that I was hung up on the gun barrel. It might as well have been a meat hook.

"I warned you not to use psi in the game!" he snapped. "Now you'll have to talk to Pete."

"One of us isn't going to live through this," I promised him, starting to reach for his throat. The gun jabbed a reminder to watch my manners.

"Do you come quietly?" Lefty asked shrilly. "Or do we—?"

The sudden shrillness of his voice scared me more than anything else. He was worked up worse than I was. "Quietly," I conceded, trying to get some saliva to flow again. The pressure against my spine eased off.

Lefty stepped out of the alley to

the curb and flagged down a cruising 'copter. He made me get in first, which gave me a chance to turn, when I sat down, and see who had been holding the gun on me from behind. The gunman had sure drifted in one awful hurry. There wasn't a soul except Lefty around.

He hopped in after me. The turbine howled as the driver gunned us up on the air cushion and sent us skimming away. The trip lasted only four or five minutes through the thinning traffic of late evening. We pulled up in front of a brownstone house in the upper Eighties that reared up four stories among a string of three-story neighbors.

I limped to the top of the steps after Lefty. He let us in with a key. We were in a dimly-lit hall that had a staircase against its left wall and an open door at its right, leading into a darkened room.

A tall skinny girl was sitting about a third of the way up the carpeted flight of steps. Her face was drawn out to a point by a long, thin nose. "Here they are," she called up the stairway, showing braces on her teeth. She stood up and came down the hall. She was clad in a shortie wrapper that showed off her race-horse legs.

"Billy Joe," she said to Lefty. "I told them you were coming."

"Hi, Pheola," he said. "Good for you." He sounded pleased.

There were steps above, and two others joined us. First came a short square man with gray hair and bushy gray eyebrows. He was wrapped up

in a flannel robe that had once been maroon and was now rusty with age and wear. It only served to confirm that he had just been yanked out of bed. He hadn't bothered to put anything on his bare feet or to comb his hair. A pretty wild looking old man.

Behind him stumped a chunky woman, crowding fifty. She was in a worse state of dishabille. She hadn't quite made it to bed and was still in her slip. Her stockings had been unhitched from her garters and hung in slack transparency around her fat calves, like the sloughed-off skin of a snake.

"I told you," Pheola said to the gray-haired man.

"It's nice that you're right once in a while," he said in a scratchy, sleepy voice, walking past her to switch on the ceiling of the room on the right side of the hall.

She didn't like that. Lefty stopped her reply. "Will it be PC?" he asked her.

"No," she said.

"You missed that one," Lefty said.

"Didn't neither!"

"Well, sit in with us and see," he suggested.

"What for?" she asked. "I know what's going to happen in there. You'll be along to bed right soon, darlin' Billy!"

He looked over at me. "Go on in, Tex," he said.

"Darlin' Billy!" I sneered.

"Don't pay any attention to her," he said. "She's in another space-time continuum." I pointedly ogled the girl's pretty legs going up the stairs

and whistled softly. "My wife," he said, blushing. "A powerful PC, or one day will be."

"You're kidding," I said. His arm on my elbow pushed me into the lighted room.

It had been the front parlor of the old brownstone in its prime, and was now fixed up as an office. The place held an executive desk with several buttons and enough other controls to put it in orbit. There were a number of cushioned straight-backed chairs and a comfortable leather couch under the window. Only the fact that it was getting on toward midnight made me willing to believe that the couple who had walked down the stairs expected to be taken seriously.

"This is George Robertson, the poker whiz," Lefty said briefly to the two sleepy heads. "They call him Tex. Tex, this is Peter Maragon, Grand Master of the Lodge."

The gray-haired man gave me a tired nod. "I imagine you're a pretty angry young man, Mr. Robertson," he said in his scratchy voice. I started to tell him quite a little about how I felt, but he held up his hand. "I've had a hard day," he complained. "And I got out of bed solely to adjudicate your case. Now, this will go a lot more quickly if you listen." He smacked his lips a couple times as if he wondered where he had left his partial plate. I hoped he had swallowed it. "Sit down, sit down," he said irritably, pointing at the chair across the desk from him.

I debated it, but took the chair, grinding my teeth.

"You aren't stupid, or you wouldn't be a scientist," he said, revealing that he knew a lot more about me than I did about him. "Let's start out with a couple facts."

He pointed a gnarled finger at Lefty. "Wally Bupp stacked a deck of cards on you tonight," he said gruffly. "What you don't know is that he stacked them with telekinesis. He's a TK."

"A snake!" I gasped.

"Watch your lip!" Maragon croaked. "Everybody in this room is a psi. 'Snake' is a dirty word around here, Mr. Robertson. Mr. Bupp has a special aversion to it."

"What's the purpose . . . ?" I began hotly.

"Hah!" Maragon barked. "A good word!" He cackled a laugh at me. "Purpose. Exactly, Mr. Robertson. Well, the Lodge has a purpose, and you'll act a lot more sensibly if you know it."

"You," he said to me. "Are a TK."

"You," I yelled right back. "Are a liar!"

He ignored me completely. "We can't afford to have you gambling and cheating Normals," he went on. "One of the Lodge's fundamental rules is that no psi may use his powers to the detriment of Normals. Lefty's big scene at Nick's fixed it so you won't be welcome in a big-time poker game anywhere in town. We did that deliberately. And we're telling you to quit gambling, as of this minute."

"You say you are a TK," I interrupted.

"Somewhat," he said. "I have psi powers, but I'm not mainly a TK."

"Whatever your powers are," I said. "They don't make you supermen immune from the laws of libel. If you or anybody I can catch breathes one false word about my being a snake, you'll be on the receiving end of the roughest lawsuit you ever heard of!"

"The silliness of that statement will occur to you in a while," he said dryly. "And truth is a defense against a claim of libel. But to get back to purpose. Our second purpose tonight is to get it through your thick head, Mr. Robertson, that the Lodge insists on its right to control your actions insofar as they involve the use of your psi powers. We mean business, Mr. Robertson, and before you are through with our heartless Mr. Bupp tonight, you'll know it. That's all that's behind our little charade."

He came to a stop and took a deep breath.

"I'm going to make one statement and rest on it," I said, trying to keep my voice calm and level.

He shrugged. "Your turn," he said.

"I'm a Normal," I said. "I flatly deny that I have the slightest shred of psi power. I accuse that freckled snake over there of lying deliberately. I'll make him pay for it, and he'll be lucky if it isn't with his blood."

"That's all?"

"Isn't it enough?"

He laughed harshly and grinned over at Lefty. "Some of you maver-

ick psis scream like a gelded porker," he said. "I figured you'd tell me we'd cost you a fortune in prospective poker winnings, to say the least."

My stomach dropped. I hadn't thought of that, not as much as I should have. It was my only income! "Something a darn sight more important than money is involved," I said.

"Maybe you aren't such a bad guy," he decided. He looked over at the woman standing silently in her slip beside his desk, her bare arms folded over her ample bosom.

"How about it, Milly?" he asked her.

She shrugged. "He believes what he says," she told him. "He honestly doesn't think he has any psi powers."

"That mitigates the affair," Maragon said. "Still, our purpose demands an object lesson. I have to fine you, Mr. Robertson. You've broken one of our rules by using TK to stack a poker deck. Because you weren't aware of it, though, half of your fine will be remitted if you join the Lodge within a week. Accordingly I assess you . . . uh, how much, Milly?" he asked.

"He's got eight thousand and some in his breast pocket," she said with fiendish accuracy. "Every penny he has in the world."

"Assess you eight thousand dollars," Maragon concluded. He got wearily to his feet, and started to pad past me toward the door. "Mr. Bupp will collect," he said. The woman followed him, her hose hanging down around her ankles, and climbed the

stairs stolidly behind him.

Lefty, whom Maragon had called Wally Bupp, walked around behind the desk and took the swivel chair that the older man had just vacated. "I'll take the eight thousand now, Tex," he said, poking his chin at me belligerently.

"You'll take four," I said, getting my feet under me.

He frowned. "Four?" he repeated.

"Four knuckles," I gritted and started for him. The gun barrel rammed me in the kidney, harder than it had in the alley. They'd smuggled in some protection. I really slammed on the brakes, halfway across the desk. Lefty hadn't bothered to flinch, but sat there with his legs crossed, looking idly at his fingernails.

"Look behind you," he said.

I did. The gun eased off my kidney as I turned. There wasn't anybody there.

"TK," Lefty said. "I also used it to trip you up when you went for me in the alley, after I'd TK'd a left right in your gut. You're a hard guy to stop, Tex. But don't overdo it."

"Mere pain never stopped a guy who really meant it!" I went for him again.

Then it hit me. A deep and sickening pain throbbled from my breastbone down my left arm. The lights started to dim, and I sagged down on the desk.

"How'd that feel?" Lefty asked, apparently not expecting an answer. "I clamped your coronary artery shut



for a few seconds. A post-mortem would never be able to tell it from the real thing if I held down tight."

His grin had a viciousness in it I hadn't seen before. He held out his hand. I struggled erect and handed my wallet to him. He only took out the big bills, and tossed it back across the desk to me. "Thanks," he said. "You'll get half of this back if you decide to join the Lodge within a week."

"What's all this about a Lodge?" I tried weakly. "What Lodge?"

"Why, this Lodge," Lefty said, waving a hand around loosely. "It's an organization of folks with psi powers. Guys like you and me, Tex."

"I'm no TK!" I growled. "I didn't manipulate those cards in any way."

"Funny you say that," he said, looking interested and leaning his elbows on the desk. "You're right. I hadn't actually bothered to stack the deck, Tex. Just kept a light TK touch on it to see if you were moving cards. You weren't, but you were hitting them right all the time. I haven't had time to tell Maragon the boys on the Crap Patrol were wrong. It wasn't telekinesis, Tex. It was precognition. You're a PC, Tex." He stood up and pointed toward the door. I was shaking so badly from the heart attack the snake had induced that I got up helplessly and allowed him to steer me out by the elbow.

"Remember," he said at the head of the steps that led down to the street. "You've got a week to make up your mind about joining the

Lodge. In the meantime, don't gamble."

"Great," I said bitterly. "You sapped me down and rolled me for my poke, or the next thing to it. And now you tell me not to get in a game and try to get whole again. Why should you care?"

"You don't listen," he said sourly. "Look, psis *are* supermen, in spite of your sneers. And whether you like it or not, Tex, you've got some psi powers. Normals resent, fear and hate us. We can't afford to have you make a killing at a poker table and then get exposed as a 'snake.' We psis are a tiny minority. We all get blamed for things any one of us does."

"I'm a Normal," I said, a little hollowly.

"You're more fortunate than that," he assured me. "Just so you understand the origin and purpose of the Lodge. We find strength in union, strength to resist the pressure of the majority. And membership in the Lodge gives us control—control over psis like you who might bring the wrath of the Normal majority down on us by their shortsightedness."

I shook my head. "You don't have to dress it up like this," I protested. "This is blackmail or extortion, I'm not sure which. I'm not joining anything you bunch of creeps are a part of."

"You won't find that practical," he said, turning to go back inside. "And remember: stay away from cards."

You're supposed to have nightmares at night. I had mine the whole

next day. No, I wasn't a TK, Lefty had said. I was a PC. You don't have anemia, Tex. It's leukemia!

I made a farce of trying to get some work done in the lab. After letting the third test tube slip through my fingers and shatter on the lab bench, I gave it up. How would you have acted if you had gotten that kind of news? That first gut-twisting admission that you really *may* be a snake! Then sharp awareness of what it means. A guillotine couldn't cut you off more sharply from Normal humanity. But the spirit struggles and refuses to accept it. You *can't* be a snake!

"Take action!" I said aloud, getting a worried look from my lab assistant, busy mopping up my last shattered culture. "Don't spin around like this. Do *something*!"

I did the only thing I could think of, and dialed Shari at her laboratory. She refused to accept the call at first. Finally she tore herself away from a "delicate experiment" long enough to look at me angrily in the screen.

"We don't have anything to say to each other," she said coldly. "There are delicate experiments—"

"Can you test me for psi powers?" I interrupted.

"Whatever for?"

"To settle whether I have any," I snapped. "It's important to me."

"Not necessary," she said. "Do you think I'd be successful in the psi field if I weren't sensitive to this sort of thing? Don't worry, Tex. You're a Normal."

"Thanks," I said. "So you've told

me. Now prove it to my satisfaction."

"We shut up shop at five o'clock," she said. "I'll be here for about an hour after that. My dinner date isn't until seven."

"Bet he doesn't gamble," I said, trying to win a little sympathy.

"You *bet* he doesn't" she sniffed.

Shari's laboratory was nothing more than a large windowless office that could be cut into two soundproof parts with a movable partition. She had a whopper desk with full controls and other evidences of academic pelf. On a table against the short wall was her apparatus—if that's what you call decks of cards, a roulette wheel, a set of Rhine ESP cards, several dice and, so help me, a crystal ball.

Shari stood up behind her desk when I came in. It was something of a shock to find that her colorful peasant getup was antiseptically sheathed in a white laboratory coat. She was sure dressed for dirtier work than she would ever have to do in that lab.

Her first look at me was one of surprise, but it softened to one of concern, which might have been cheering on some other occasion. "What has happened, Tex?" she asked.

"Nothing," I said, keeping calm. "Not a thing."

"Outside of seeing a ghost, eh?" she said. "Stop grinding your teeth like that. You'll give me the creeps. Sit down. Sit down! Do you hear me? Relax!"

I guess I found the chair across

from her at the desk. "Do I have psi powers?" I asked her. "Either TK or PC? Test me, Shari."

"What happened?" she insisted.

I shook my head. "I'd rather not talk about it—not until I know the result of your test," I said.

Shari thought about it for a while, tapping her desk with an irritated finger, and finally got a set of cards from the lab table against the wall. She shuffled them slowly on her desk blotter. "Cards are your strong point," she observed. "If you have any psi powers, they're most likely to show up with cards. I take it you will do your utmost to be right?"

"Who would double-cross himself?" I said tightly.

"Most people," Shari said. "When it comes to psi. But we'll assume, for a starter, that you are on the level." She stacked the cards in her hand. "We'll keep it simple," Shari suggested. "I'll deal the cards one at a time. All you have to do is tell me whether the next card will be red or black. Fair?"

"Sure," I said. "Deal!"

She was a lousy dealer. Or maybe it was because it was a one-handed operation. She was scoring my hits and misses with the little counter in her other hand.

She ran the deck ten times for me. I got thirty-eight right on my best attempt and thirty-seven wrong on my worst. In total, of five hundred and twenty chances, I was right on two hundred and seventy-three, or fifty-two point two per cent of the time, according to Shari's slide rule.

"Oh, no," I said dismally. "I *do* have a little edge on the cards!"

"As a statistician, you'll make a great biochemist," Shari said, putting the deck away. "That would only be true if I hadn't let you see your hits and misses as each deal proceeded. You made succeeding guesses in the knowledge of what had already been dealt. Actually, your score was below average for trained observers without psi powers." She heaved a sigh, which somehow seemed to be of relief. "And now, you crazy cowpoke," she said, "tell me what this is all about."

"I'm not a psi?" I demanded.

"Not if you were really trying," she said. "Were you?"

"You think I *want* to be a psi?" I demanded. I told her all that had happened the night before from the time Lefty had accused me of being a snake until he had let me out of the brownstone house and warned me against gambling.

Guess how Shari reacted. A big nothing!

"Well?" I asked, as she sat silent with her elbows on the edge of her desk and her chin propped up on her knuckles.

"You're really quite naive, aren't you, Tex?" she asked me. "Let me give you an objective statement of what happened to you last night."

She counted these things off on her fingers: "You won some money at poker. A gambler said you used TK to win. He took your winnings, and then some, away from you as the price of silence. He warned you not

to gamble any more. He claimed he was part of an organization of psi personalities. Is that a fair statement?"

"Except for one thing," I said. "He used his psi powers on me in a pretty dramatic fashion."

"Try Occam's razor," she suggested.

She was getting insulting. "All right," I growled, feeling my face get red. "Prefer the simpler explanation, if you can find one. I was prodded in the back, both in the alley and in the office at the brownstone house. Something hit me in the gut and tripped me up. I had a heart seizure. What's simpler than TK in accounting for the fact this was done without a soul around?"

"I suppose I shouldn't be critical of you," she said. "It's not your field and you haven't been exposed to the lengths to which charlatans go, just to prove they are supermen. The simpler explanation is that there *was* someone else in the alley, carefully dressed in dull black to stay invisible in the darkness. The second prodding of a gun in your spine was pure suggestion—you'd been so well-sold by that time you were ready to believe anything."

"And my heart attack?"

"I can think of ten poisons that would give you the symptoms," Shari said. "And don't tell me you let nothing pass your lips!" she burst out hotly as I started to speak. "I suppose you've never had a spray hypodermic? You'd never have felt it. Don't

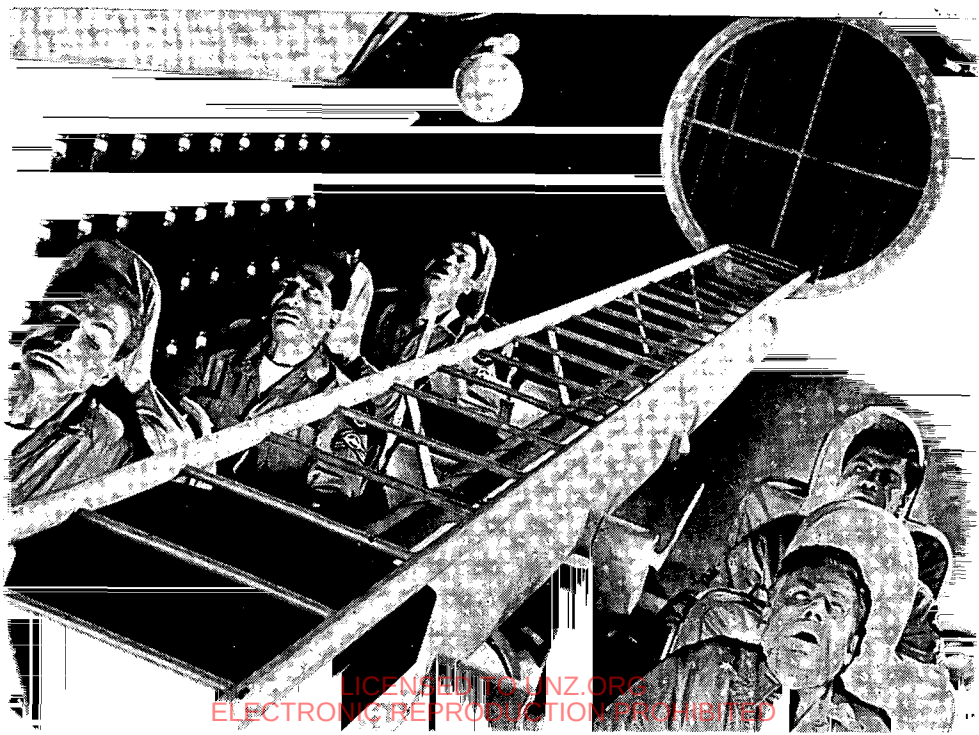
Continued on page 143

TIME FOR TOM SWIFT

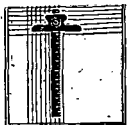
Stine suggests here a very sound test for the practicability of any transportation system: Is it suitable for an aged grandmother visiting her grandchildren? Applied to space-flight, that's a rugged, but realistic test!

By G. HARRY STINE

Crushed helplessly into their acceleration couches, the crew of an interplanetary spaceship in the motion picture "Conquest of Space" fight to breathe. Is there a space-flight system which does not impose this sort of physical strain on human beings?



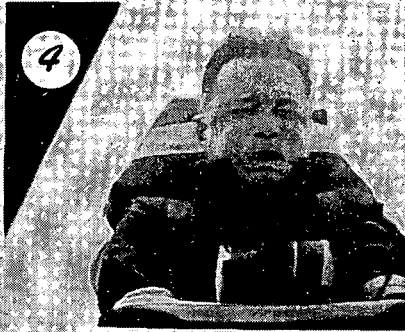
LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED



THE scene is a familiar one to science-fiction readers. Strapped into his specially formed acceleration couch high in the nose of a tall, slender, powerful staged rocket, the astronaut sweats out the countdown. He is literally jammed into cramped quarters, and his body is encased in a board-hard pressure suit. Finally, hundreds of

items on the check-list are completed, the countdown reaches zero, and a flaming hell of chemical reaction is unleashed. Tons of highly explosive chemicals are metered with uncanny precision from the cavernous tanks of the rocket. Atop a roaring 100-foot column of flame, the huge spaceship slams skyward, climbing vertically and finally arcing to the east into a programmed trajectory.

Official U.S. Air Force photo



LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Inside his space cabin, the astronaut is crushed into his form-fitting couch by ever-increasing acceleration. He cannot move, so intricate automatic controls do his work for him. He labors to breathe. His face becomes contorted as a result of the high gee-forces.

Minutes later—if every automatic gadget has worked—the chemical rocket engines gasp their last and their flame slobbers out. No further power is required for the rest of the trip, and the space vehicle now coasts in its orbit or on its trajectory to the Moon. Abruptly, the astronaut is no longer immobilized by high acceleration, but has become weightless.

For the remainder of his journey in space, except for brief periods of maneuvering acceleration, our astronaut must contend with zero-gravity conditions. He is vexed by liquids that will not pour but must be transported from one place to another by pressure. He runs the risk of becoming disoriented in the absence of a "down" reference due to gravity. It may be a pleasant sensation, or it may be highly traumatic, but it is impossible to find out how the astronaut will react to long-term zero-gee without putting him in space. If his trip is

Is this what we must endure to participate in space travel? Col. John P. Stapp undergoing 12 gees acceleration in pictures #2 and #3, and 22 gees deceleration in pictures #4, #5, and #6. Presently conceived space-travel systems impose this sort of physical strain on passengers.

lengthy, his muscles and bones may atrophy, so he must somehow exercise in his cramped cabin.

His landing and take-off from the Moon or another planet is again a battle against acceleration and against the impersonal laws of probability that may cause a vital part of the automatic pilot to fail.

Plunging back into the earth's atmosphere at the end of his trip, he is again crushed by high gee-forces as his ship rams downward toward the surface. The terrific heat of atmospheric entry cannot help but seep into his cabin and through his confining pressure suit. He must keep continually on guard lest the autopilot fail and the ship deviate slightly from its required path and attitude. If something does go wrong, he must try to correct it at once or risk being consumed like a meteor. Down in the troposphere, he must trust that his landing aids or parachutes will work, that he can find a suitable place for landing, that he will come down in the predetermined area where ships and planes are waiting to pick him up.

If his trip has been merely to close earth orbit and return, nearly one thousand pounds of chemical rocket propellants have been required to boost every pound of his body weight into space. Multi-million-dollar rocket boosters have been expended . . . or perhaps recovered in various states of disrepair.

So, let's everybody go into space! You only need to be a superman, physically fit to the nth degree with

thousands of hours of training.

While this method of space travel may be justified for the first few manned sorties into orbit, and while it is undoubtedly important that it be done soon with present-day hardware and techniques, must it always be that way?

Just because the human race—Russians or Americans or both—are presently involved in putting a few men at a time into earth orbits does not and should not mean that this method should continue to be used.

Anyone who has ever seriously thought for more than ten minutes about the problems of space travel knows full well that our present concept is too expensive, too complicated, too restrictive, and too hard on human beings for it ever to blossom into commercial, economically feasible space travel capable of colonizing the Moon and planets, mining the asteroid belt, or providing scientific information on the universe by direct human observation. In spite of the fact that our gross national product is increasing every year and has reached the point where we may attempt a form of astronautics that would have meant national bankruptcy as much as thirty years ago, we simply cannot afford the cost and risk of the present concept if attempted on the scale of a simple transoceanic airline.

We must start giving serious consideration to future space travel—say, five to ten years from now and beyond—not in the light of how we have envisioned space travel in the

past, but how we might actually accomplish large scale space travel with 1965-1970 technology in an economical fashion and in a manner such that even the most frail little old lady can make the trip to Luna City and return.

The need is urgent, for technological progress is advancing at an ever-increasing rate. And, to make the forecast benefits of space travel worth what we are going to have to shell out to get them, we must all be able to participate in it. Our frail little old lady should be our typical space traveler to use when formulating our con-

A meal in a toothpaste tube . . . which is the only way to eat it in zero-gee spaceflight. Even 0.1 gee acceleration would be enough to make this sort of thing unnecessary in space travel.

Official U.S. Air Force photo



cepts. Granted that some little old ladies are secretly hard as nails, she still serves to remind us to go gently, fragile cargo aboard. Do not hump. Use no hooks. Fasten seat belts, please. Coffee will be served when we have reached cruising condition.

This requires new concepts of space travel, because little old ladies don't ride ballistic missiles or winged artillery shells.

So I believe we must heave our cherished concepts out the air lock and have another look at things.

As a sample of the sort of conceptual work that needs to be done, let me choose two important new concepts about space travel which have already been advanced . . . just to help you break your old mental fetters. They sound quite simple and straightforward:

1. To achieve economy, extremely large space vehicles must be built if practical 'gross weight to payload ratios are to be achieved.
2. The space vehicle itself must be designed around the human passenger system and not the propulsion system.

Let's go at these one at a time, because each sounds so reasonable when stated so directly, yet both involve violent revolutions in our concepts of space travel.

Consider the validity of Concept One. It has its direct analogy in aircraft. A Piper PA-12 two-seater light plane cannot carry as much payload weight per pound of airplane as a Boeing 707 or B-52G. The addition

of a new radio transceiver set to a Cessna 140 requires careful consideration of the weight and size of the units and of their effect on the weight and balance of the ship. But the boys in the modification department of United Airlines don't sweat too much about the additional weight of a new radio unit in the DC-8.

The bigger the airplane, the lower the gross weight to payload ratio becomes, and the more economical it becomes to operate.

Air transportation would be quite impractical from the cost standpoint alone if we had nothing but light planes and had not progressed beyond the size of the Wright Flyer.

Nor could little old ladies fly around the world. The first airplane flight across America in 1911 took seven weeks; today, it is done in four hours.

Incidentally, the rate of progress in aviation should give us pause here, because it should indicate that the commercial space travel we are talking about is closer than you think. In 1945, anyone who had the timidity to suggest that our little old lady would, within fifteen years, be flying across America in a jet plane at nearly the speed of sound and forty thousand feet in the air would have been considered absolutely insane. The year is 1960, and Grandma can buy a ticket. Who was insane?

The gross weight to payload ratio of commercial airliners is something a little less than twenty. If we are to build economical commercial



Official U.S. Air Force photo

spaceships, they must also have a G/L ratio of about twenty. This means a spaceship with a gross weight of around twenty thousand tons, provided a suitably efficient propulsion system can be used.

Saturn, the biggest rocket presently a-building, will gross about five hundred tons. Its G/L for lunar landing with conventional chemical propellants is about five hundred.

Dandridge M. Cole, a conceptual designer for the Martin Company in Denver, has carried out numerous studies on this matter, and the figures above were based on his calculations. In his several papers concerned with advanced space vehicles—see Refer-

This may look like fun for Major General Niess, USAF Surgeon General, and Colonel John P. Stapp as they float freely in zero-gee during aircraft experiments leading to space travel. But, if they were to close their eyes, would they still be smiling? And what might happen to their muscle tone if this kept up for months? Is the zero-gravity state going to be a regular thing in space travel, or can we design a space-travel system that does not include zero-gee flight?

ence Bibliography—Cole also shows that significant improvements in structural efficiency are gained through increased size. And, in larger vehicles, fixed-weight components

such as autopilots, electronic gear, et cetera do not increase in weight with the size of the vehicle, thereby allowing you to put the savings into payload. In the 1975 time period, Cole conservatively envisions a fifty-thousand-ton nuclear-powered spaceship capable of transporting forty-five million pounds to Luna City.

What about costs? In considering this item, Cole calculates that the orbital transportation cost for the NASA *Mercury* project, using the rather small Atlas ICBM, is a staggering five thousand dollars per pound if all twenty capsules put their full rated payloads into orbit.

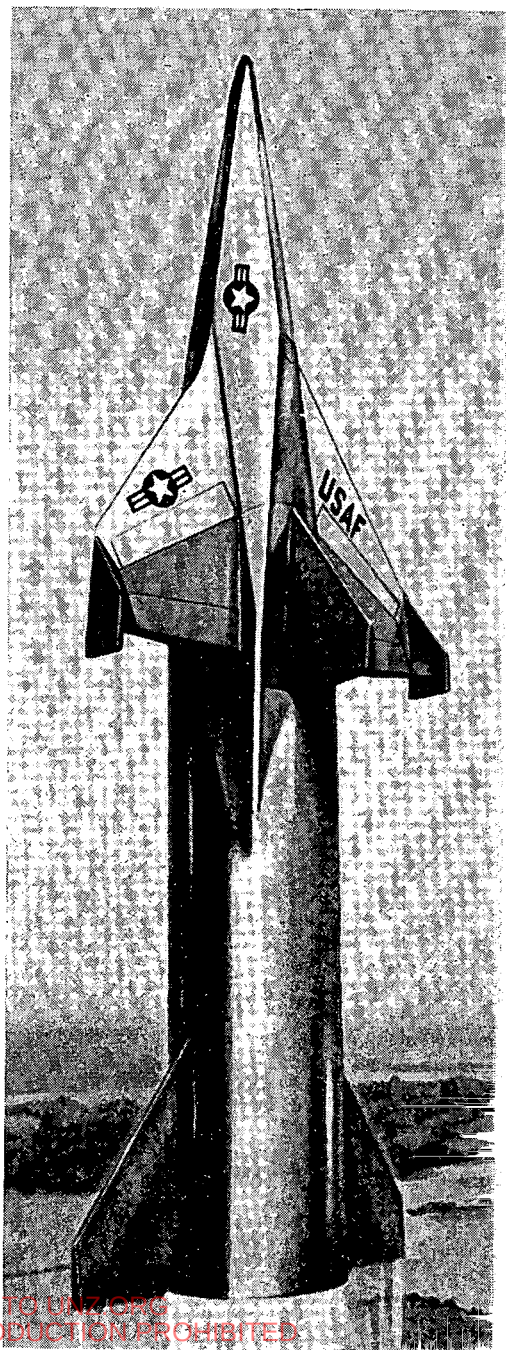
Using *Saturn* to put ten-ton payload into orbit, the cost drops to two hundred dollars per pound. For one-ton soft-landed lunar payloads with *Saturn*, you would pay a rocket express charge of two thousand dollars per pound.

Before 1980, using fifty-thousand-ton ships with nuclear propulsion, Cole estimates that lunar freight will cost about ten dollars per pound.

The reason for the increased cost of lunar freight over orbital freight is not the increased distance to the Moon, but the higher energy required for the trip. But, if you think that the Moon is so far away, consider the fact that air freight from

Man into space the hard way . . . by brute force. Expensive, dangerous, and inefficient, yet this is the concept we now have: put men into winged artillery shells to blast them into space.

Official U.S. Air Force photo



New York to Australia costs just about ten dollars per pound!

Since we are really paying for a velocity change, Cole does not consider it surprising that round-trip tickets to Luna City will probably cost about the same as a round-trip flight to Brisbane from New York. You see, an airplane has to bore a hole through the atmosphere all the way, and that takes energy.

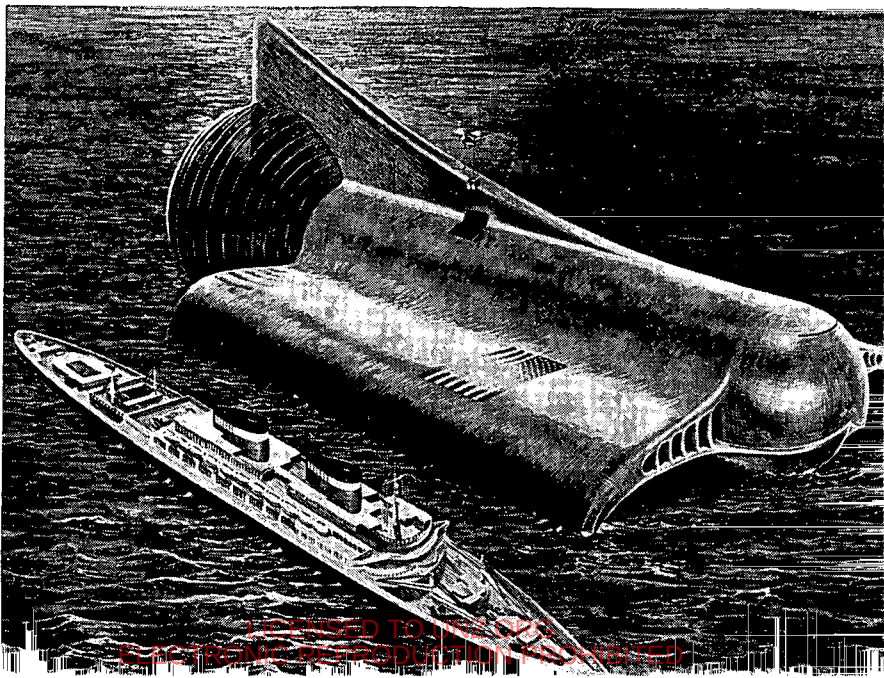
The building of fifty-thousand-ton spaceships is inevitable and awaits only the acceptance of the concept in the minds of men—ten years ago, the *Saturn* was an impossible device—and the development of a propulsion system with a higher energy-conversion efficiency than the present chemical rockets.

Incidentally, it does not make the slightest bit of difference which propulsion system is finally used—nuclear-heated jet, ion drive, Dean drive, antigravity, or what-have-you—just so long as it exhibits the proper energy-conversion efficiency. The concepts we are discussing here remain valid, simply because if you lift a pound to a million feet, it will take a million foot-pounds of energy.

We can forget about using chemical rockets—and perhaps even nuclear-heated jet rockets, too—for commercial space travel. Both are

The result of Dan Cole's studies on advanced space vehicles is this 50,000-ton atomic-powered ship of the 1975 time period, the "Arcturus." When ships reach this size spacargo cost can compete with air freight.

Martin Co. Photo



basically thermal engines incorporating the conversion of energy to thrust by means of heat. There is a limit to the efficiency of such thermal engines, and the limit is due to the fact that there is a limit to the temperature resistance of materials. Double the temperature of combustion, and you increase the exhaust velocity by the square root of two, or roughly forty per cent. And above 3500° C, most materials are in the gaseous state. If you could modify atoms, you might increase this.

In addition, thermal energy is random motion. For a reaction-type drive, linear motion is required.

Also, if we are to operate our space propulsion system efficiently—and therefore economically—it must have a good impedance match with the speed-altitude regime in which it operates.

Impedance match in propulsion engines as well as in electronics? Why not? Impedance matching is done in nature all the time. For the propulsion spectrum, consider the optimum impedance matching to be a matter of matching the vehicle speed to the propulsive method. A fan or rotor would be the best system to use for a spaceship take-off near the ground. At higher speeds and higher altitudes, a turbo-ramjet would be more efficient. In space, a linear accelerator utilizing the interplanetary ion population might be most efficient.

But a thermal rocket is certainly not efficient, particularly at the moment of launch from the earth. It's

only sheer brute force that makes our present ICBM's go. A present-day rocket burns a large fraction of its reaction mass just breaking ground, punching up through the atmosphere, and fighting gravity all the way. We need a better propulsive impedance match to the environment in order to make space travel economical.

Perhaps several types of engines will be used: augmented turbo-ramjet for take-off up to Mach 10 and 100,000 feet, and perhaps an electrical propulsion system above that.

Or we are quite likely to end up with a single propulsion system capable of effecting a good impedance match from the earth's surface to space.

Don't ask me what kind of an engine it might be or how it might work. If I knew, I would build it. Perhaps it has already been built. At any rate, speculate with me and maybe a new concept will emerge.

The father of many of the above concepts is a man, like Cole, who is one of those rare individuals, a synthesist. Colonel William O. Davis, formerly in charge of the USAF Office of Scientific Research, has put a great deal of thought into the problems of space travel . . . but he has, I believe, tried to tackle it from a new angle.

Hence the second Concept I tossed out at the beginning of this opus.

Davis maintains—and he is quite correct—that we have evolved a mental concept of manned space

travel by designing our prospective space vehicles around a propulsion system, the rocket, instead of designing them around the most important factor in the problem: the human astronaut. We have taken the artillery shell, given it brute-force propulsion, and stuffed a man into it. We should take a man and design the space-flight system around him.

To provide an example of what he means, Davis has examined carefully the basic problems of space travel and conceived possible solutions. These he has used to design a strictly conceptual space craft. "Let us forget for the moment we ever heard of the rocket and guided missile," he stated in an article in *Missiles and Rockets* magazine in December 1956. "Let us assume that we will start from scratch with the science that is available to us and a knowledge of our objectives and design a spaceflight system from here."

By the way, Davis does not maintain that we should build the spacecraft he conceived. He designed it for one purpose, the purpose for which I am presenting it here: to start controversy which in turn will start people thinking. A good scientific controversy is one of the surest ways to promote the generation of new concepts. As the pioneer fluid dynamicist, Theodore von Karman, remarked after the First Astronautics Symposium in San Diego in 1957, "A very excellent meeting. Top-notch papers. Good presentations. But very little argument! How can you progress without argument?"

Von Karman is right in one sense. The field of astronautics has nearly stagnated from lack of new concepts. Technological progress is being made, but it is merely refinement of hardware based on concepts that were old hat in this magazine twenty years ago. If we are to surpass the Soviets in the space race, we cannot do it by trying to improve our existing hardware to match theirs. You cannot win such a technological race once you have discovered you are behind. You must change the course or vector of the race by new concepts, *then* run like hell.

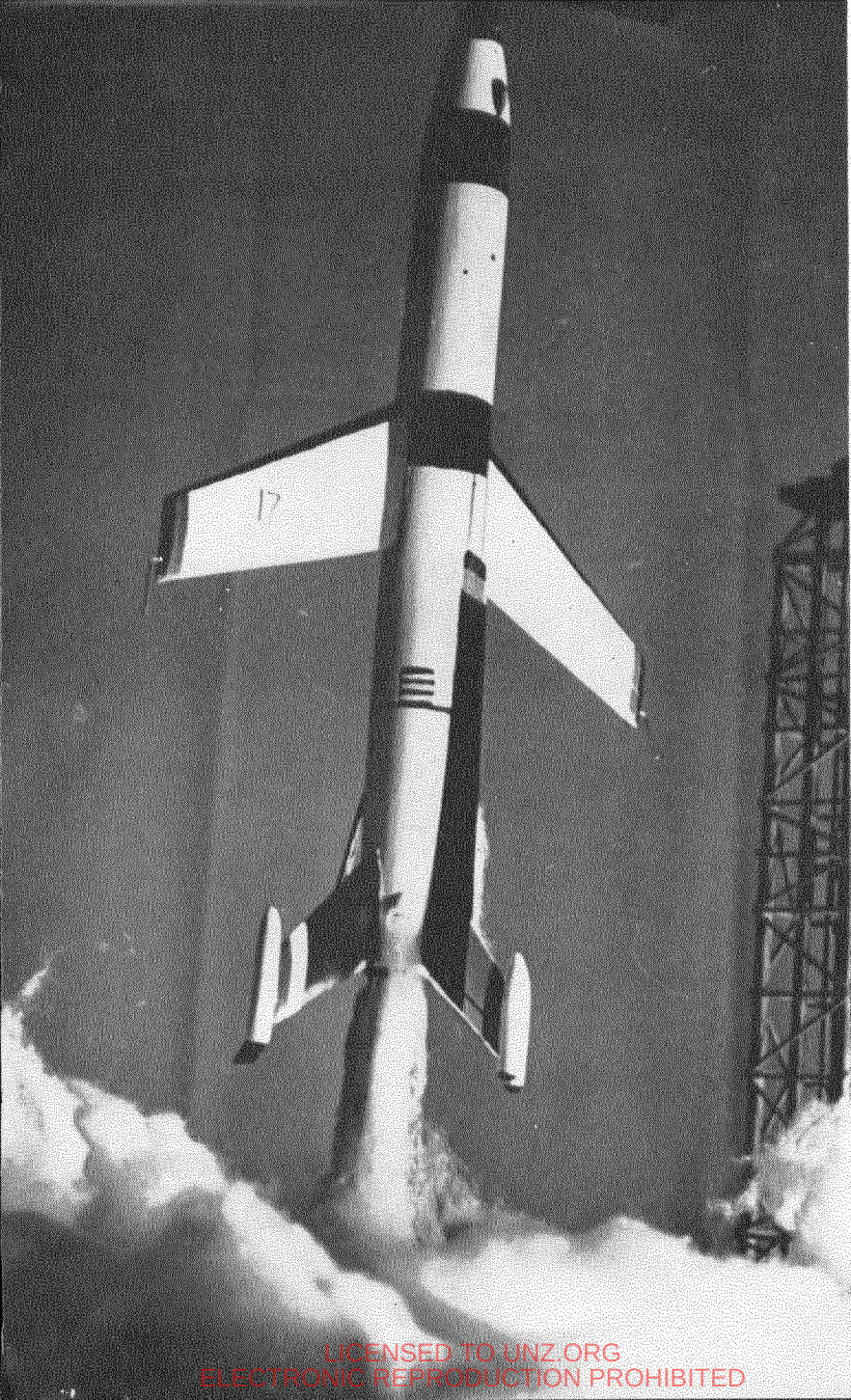
Davis' concepts are designed to elicit argument and foster new concepts. What new concepts are possible in space travel? Consider Davis' breakdown of requirements for a usable space-flight vehicle in order of priority:

1. It should be so designed and operated that there is a high probability that the human beings aboard will be able to return to earth safely, either in the case of a normal flight or an emergency.

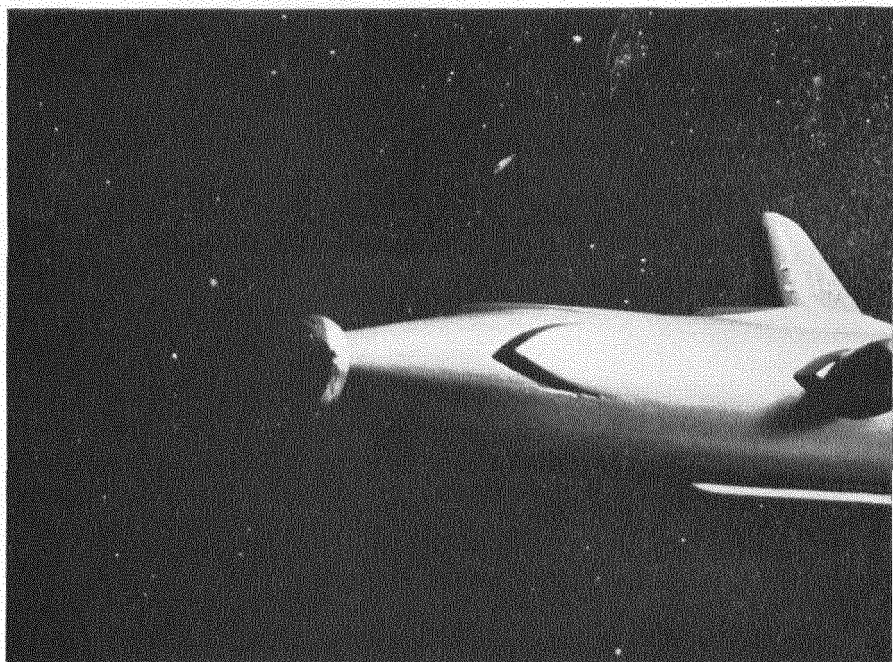
2. It should be so designed and operated that there is a high probability that all equipment will survive the flight in a workable condition.

Science fiction itself has been one of the agents which created our present concepts of space-travel systems, but ships such as this one will probably never be built because of the basic limitations in thermal reaction engines.

Model and photo by the author, 1952



LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED



3. There should be a high probability for mission success inherent in the system.

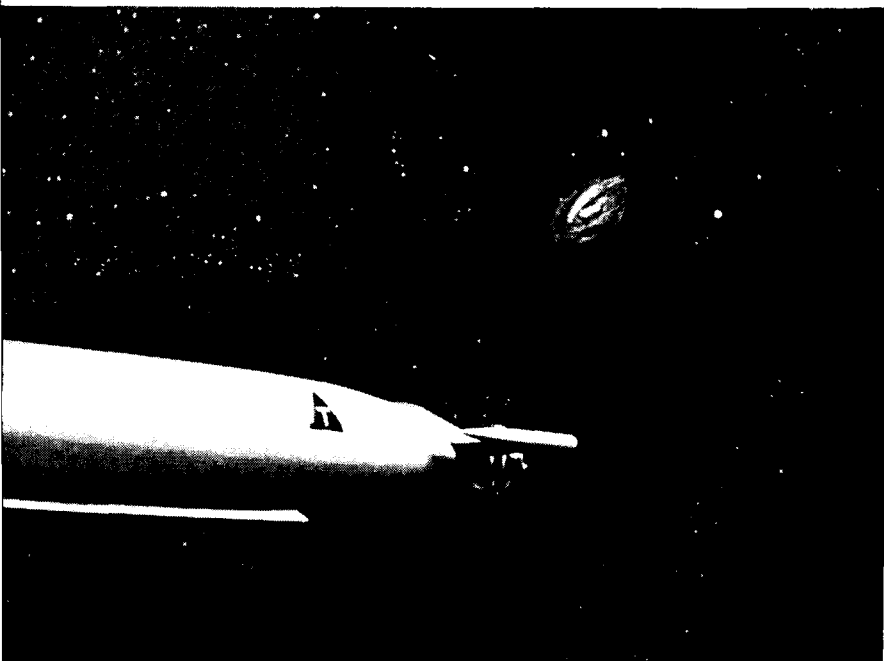
4. The space-flight system should be compatible with the physical, biological, and mental limitations of human beings. There should be low accelerations, but no zero-gee. Tolerable temperatures should be maintained at all times. Flight times should be short. And the entry profile for return to the earth should be reasonable.

5. The space-flight system should perform its mission in an economical manner.

All other widely-used human transportation systems conform to this

sort of general set of requirements—ox cart, trains, automobiles, and transport aircraft. Space travel will have to conform as well.

How did Davis propose to design vehicles to do this? In the first place, he forgot about guided missiles and ballistic rockets. He threw out the concept of the slender rocket shape and went to an annular flying barrel. He had several reasons for doing this, as will be apparent as we go along. He placed his crew cabins, fuel tanks, and other equipment in the annulus itself. In the center of the annulus, he would mount turbojets for atmospheric flight and a ramjet



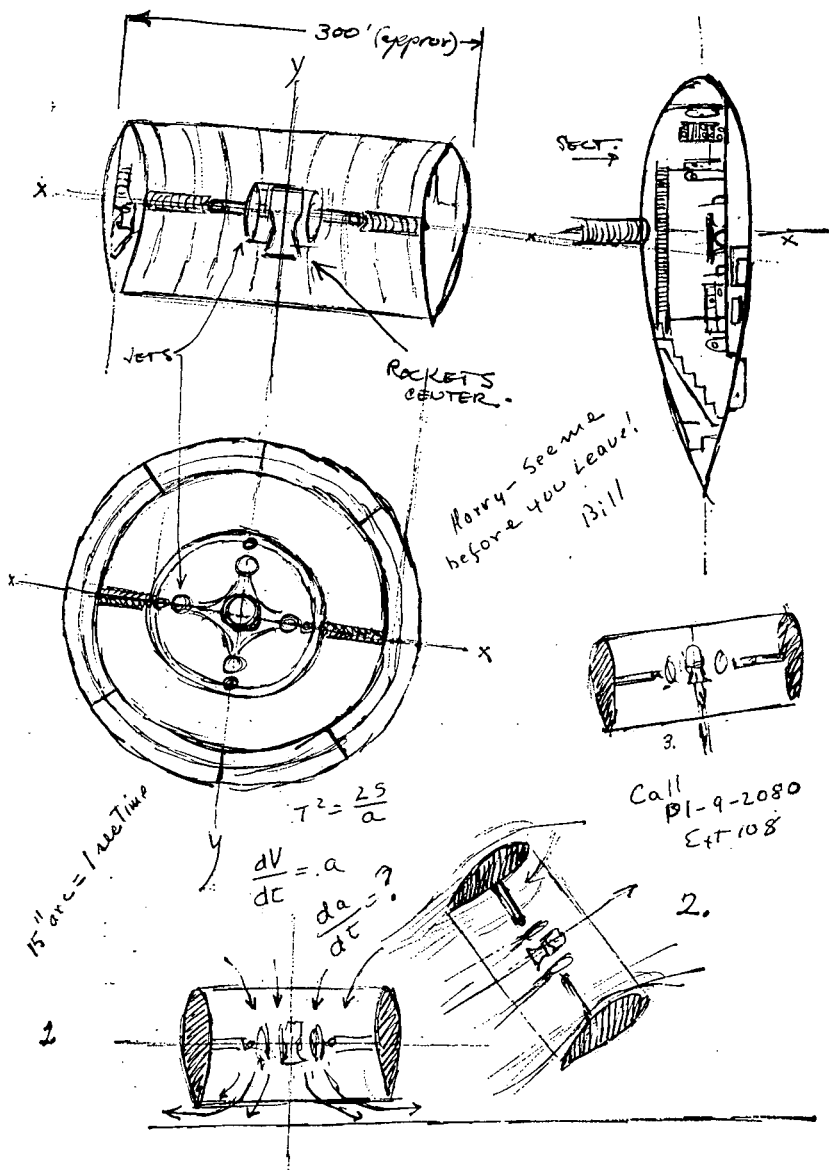
Model and photo by the author

Space travel without rockets. This conceptual design of the author's, built and photographed in 1955, shows a spacecraft of extremely large size based on the submarine rather than the artillery shell.

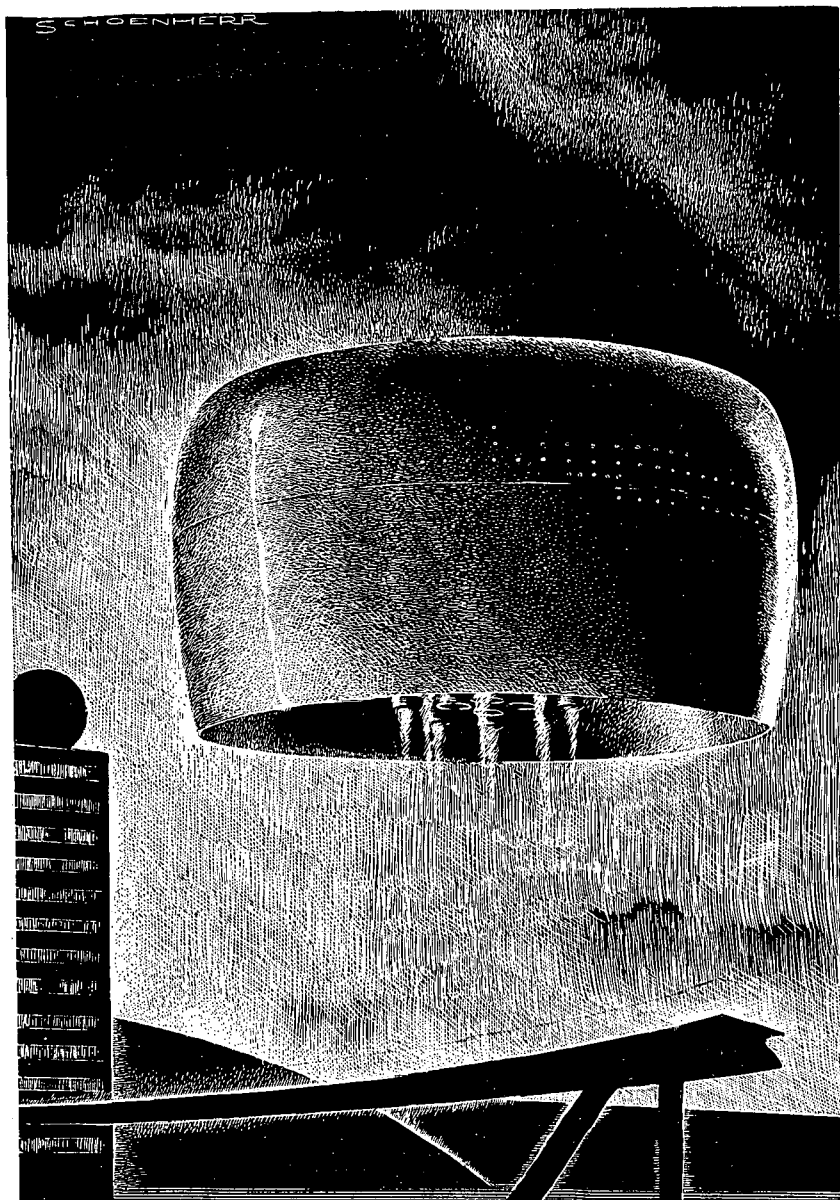
or electrical propulsion system for vacuum flight. Using the annular wing as the shroud for a jet pump and utilizing the Coanda Effect, the ship would be quite efficient as an atmospheric vehicle and as a spaceship.

The Davis Flying Barrel would be capable of VTO from earth, even though the total thrust output of the engines did not exceed the weight of the ship. An annular jet pump is an augmentor; it sucks air because of the induction action of the turbojets, and

this principle is used on the DC-8 jet airliner. The induced air is mixed with the jet, thereby increasing the mass flow and effecting a better low speed impedance match. The Flying Barrel would takeoff on ground cushion in the same manner as a Ground Effect Machine. With ground friction broken, lateral motion would be introduced by tipping the barrel over toward the horizontal so that enough airspeed could be gained for the annular wing to lift. Note that using ground cushion does not require en-



The distance from this to



..... this is greater, usually, than that from Earth to Pluto!

gine thrust equal to or exceeding vehicle weight; the use of ground effect permits you to take off with about twenty-five per cent of the thrust required for a simple VTO without ground cushion.

Once lateral motion has given the ship an airspeed of about one hundred knots and the ship is truly flying, it then climbs-out with constant one-hundred-knot indicated airspeed. Because air density falls off with altitude, indicated airspeed—which is measured with a ram-and-static pitot tube—decreases with altitude as well. But, since Davis' flight plan calls for constant I.A.S., the true air speed of the ship increases as it climbs. At about eighty-five thousand feet, it has reached sonic speed. Because the ship is flying a constant dynamic pressure flight path, true air speed begins to increase rapidly at altitudes over one hundred thousand feet. At this point, the turbojets are phased over into ramjet operation, or the deep space propulsion system is phased in.

This flight path has allowed Davis to trade speed for altitude, thus staying well out of the extreme "thermal ticket" region that occurs at high Mach numbers in the lower atmosphere. He has also dodged the problem of high drag forces due to high speed in the lower air.

The take-off and climb-out phase need not be carried out with high accelerations. The annular wing has allowed the ship to use the atmosphere like an airplane, and no greater accelerations than those encountered

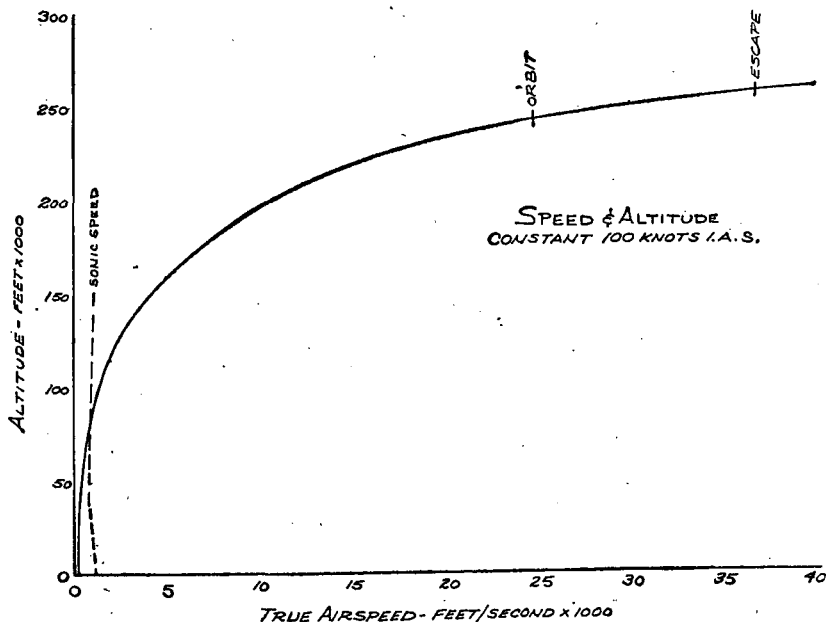
by a jet airliner in take-off and climb-out need be used.

In fact, the whole interplanetary flight plan of the Davis Barrel is a low acceleration one. He does not intend to go into ballistic, zero-gee flight at any time. There are two reasons for this: (a) ballistic interplanetary flights of the classical type are much too long, and (b) the long-term effects of zero-gravity are at this time believed to be somewhat injurious.

Davis plans 0.1-gee acceleration out to turn-over point and 0.1-gee deceleration to destination. Providing take-off is made at an optimum time for the relative planetary positions, a Mars trip at constant 0.1-gee is only a matter of seventeen days.

But even 0.1-gee may not be enough to provide decent gravitational orientation for our little old lady. So Davis conceives of spinning the annulus about its long axis to provide pseudogravity by centrifugal force. The ship would be spun-up shortly after phase-over to interplanetary drive, and the spin rate might be slowly raised or lowered until at the end of the trip the pseudogravity of the ship was the same as that of the planet of destination, thus allowing the passengers and our little old lady to become gee-acclimatized.

Landing through an atmosphere can be just the opposite of take-off with the ship following a constant-pressure flight plan. The beauty of the one-hundred-knot flight plan, particularly for the planet earth, is the



fact that extremely low temperatures are encountered. Most of the ship's speed is lost at very high altitude. Because we are dealing with real gas here, and gas that may already be ionized to a greater or lesser extent, plus dissociated to boot, the real skin temperatures of the ship could be maintained below 1000°C with very little cooling, if any.

Landing on earth is a leisurely process because the final landing approach is made under turbojet power at less speed than a modern jet airliner. It is just the opposite of take-off with the ship slowly tipping vertical and settling on ground cushion.

A Martian landing is not much different. Although the air density on

Mars is much lower, this does not appreciably affect landing speed. Add to this the fact that Mars has about 0.3 earth-gee gravity, and the ship actually lands slower on Mars.

Moon landings are another matter, and will have to be made with a tail-first power-on approach and touch-down. But if the ship has enough thrust to cruise at 0.1-gee, it would certainly have enough full throttle power for the 0.17-gee lunar gravity field. In fact, it could VTO off Luna nicely.

With the tail-first landing and vertical take-off (VTOL), this conceptual ship makes an excellent exploration ship, because, on the planets it is most likely to sit down on,

it can do so on a completely unprepared surface.

Of course, combining Cole's concepts with those of Davis will probably mean that the Barrel would be quite large. This could lead to some luxurious appointments if desired—swimming pool which is filled once the ship starts its spin, zero-gee gym in the hub of the annulus, crystal goblets at the captain's table from which a drop of water would not be spilled even at turnover . . . But this is after exploration and early colonization.

Why hasn't the Davis Flying Barrel been built? In the first place, it is only a conceptual design to show what *could* be done with present-day technology provided we forget about the ballistic rocket. And Davis first propounded these ideas back in 1956, and who was paying any attention then? These days, everyone seems to have become enamored by the idea of doing the job with something essentially nothing more than an enlarged V-2, an artillery shell with room for people.

There are other reasons, too, but they aren't technical. They involved people. The ballistic rocket boys are now firmly in the saddle; they've done a very good job with what they've got.

Regardless of the success of our present projects, I believe it is time to start thinking about our little old lady in space. Sooner or later, we must do so. Why not start now? I may not believe one hundred per cent

in the concepts I have reported here, and I hope you do not. Let's have some controversy about it. Out of it may emerge better ideas. Our vision of space travel involves a towering rocket rising vertically on tongues of lashing flame . . . a concept that I and many other science-fiction writers have helped to foster.

But have you noticed that the fun seems to have gone out of it? Space has, since 1957, gotten to be big business full of complexity and making lots of noise with lots of muscle.

I believe it is time for a change. Time for new concepts. Time for new ideas. Time to leapfrog the Soviets in space by evolving and harnessing new concepts. Time to think about ways to start colonizing Mars at the same time the Soviets land a scientific expedition on the Moon with big rockets.

Strangely enough, the most difficult part of space travel is the job we've just been through and now must do again: sell a new idea. But this idea or any new idea won't or can't be sold until somebody takes it from concept to primitive working hardware. The history of science and technology is full of wonderful concepts that were never reduced to practical working gadgets, and there is no reason to believe it is any different now. The patent office is stuffed with unworkable, uneconomical ideas.

Trend curves indicate that a new propulsion device should be conceived between 1956 and 1962, to give very rough dates. Perhaps our

new propulsion system has already been invented. Perhaps it is already working for us in some other application. Perhaps it is being tinkered with in some basement. Perhaps the basic concepts *and* the demonstrable laboratory experiment were brought forth decades ago. Some young Tom Swift has, is, or will come up with it . . . and we will have real space travel.

No amount of money will generate a new concept. Concepts come from the poorest garage gadgeteer with nothing but a pair of pliers and a screwdriver; concepts also come from the most erudite scientist who, while tinkering, stumbles onto it. Once the concept has been formulated, once the invention has been made, *then* money will bring it to the sophisticated hardware stage more rapidly.

Billions of dollars are now advancing the hardware art of ballistic missiles and space probes, the first steps toward flight into space. But the technology of space travel is not going in the direction it could go. And not in the direction that will allow all of us

to go to the Moon the way we fly across the oceans.

On the Space Age timetable, it's quarter-past time for new ideas.

Got any good ones?

REFERENCE BIBLIOGRAPHY

Cole, Dandridge M.: "Lunar Colonization," Document M-M-P-59-18, Denver Division, The Martin Company, March 1959.

Cole, Dandridge M.: "Space Vehicle Evolution," Document P-60-14, Denver Division, the Martin Company, February 1960.

Cole, Dandridge M.: "Extraterrestrial Colonies," Denver Division, The Martin Company, June 1960.

Davis, William O.: "Fundamental Basis of Space Flight," *Journal of Astronautics*, Vol. III, No. 1, Spring 1956, pg. 9.

Davis, William O.: "A New Approach to Space Flight," *Missiles and Rockets* magazine, December 1956, pg. 64.

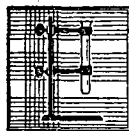
Davis, William O.: "Why Not a Logical Approach to Space Flight?" *Missiles and Rockets* magazine, August 11, 1958, pg. 49.



Patent Law is indeed a strange profession. It's not enough that you be struck by a flash of inspiration—it must have just the right timing. Trouble with people like Arthur C. Clarke is they're out of time . . .

THE LAGGING PROFESSION

By **LEONARD LOCKHARD**



EARLY morning was the best part of the day in the offices of Helix Spardleton, Esquire, patent attorney extraordinary, and this particular morning in February, 1960, was no exception. Susan, our secretary, made the coffee, and she, Mr. Spardleton, and I sat around and drank it while Mr. Spardleton went through the morning's mail. We talked of many things, but mostly we listened to Mr. Spardleton's comments as he opened letters and packages and journals and circulars. Many of the letters were from the United States Patent Office informing us that the patent applica-



Illustrated by Summers

tions we had filed for our inventors were incomplete or too vague or too broad or too indefinite or were otherwise defective, and in any case the subject matter was clearly unpatentable over a host of prior patents which showed our inventions with such clarity that an eight-year-old child could understand them. Those Office Actions could break the heart of a sincere inventor unless he understood that such conduct was just part of the normal give-and-take of patent practice. With few exceptions, the Primary Examiners considered it necessary to reject all the claims in a patent application the first time around no matter how good the invention.

I always enjoyed listening to Mr. Spardleton's remarks about the various absurd Actions of the Patent Office. "Look at this one. He cites wood pulp patents against us when all our claims cover asbestos fibers and have nothing to do with cellulosic fibers. He's wasting our time, his time, and the taxpayers money. We'll give him a short answer with sarcastic overtones. And look at this. In this one we claim a dielectric heater and the Examiner cites against us patents dealing with inductive heating; he doesn't know the difference between a fluctuating field and a fluctuating current. Oh my, they don't make scientific lawyers the way they used to."

He took a sip of coffee and opened some junk mail without comment. He placed it on the pile farthest to his left, the one that

Susan simply dropped into the wastebasket.

Mr. Spardleton opened another Office Action and glanced at it. He nodded and said "Hm-m-m" under his breath. He looked up at me and said, "Mr. Saddle, you seem to have filed a patent application for Dr. Marchare claiming a laminated wall panel that supplies both heat and light, and also serves as a heat sink. That right?"

I had to think for a moment. I had filed so many Marchare applications that I sometimes lost track. Then I remembered. That panel was going to revolutionize the building industry in the United States. "Sure," I said. "It takes the place of all interior walls at a price so cheap you—"

"Did you by any chance check any of the published articles relating to structures that will be used under the airless conditions encountered out in space?"

"Why, I don't remember that I did. I don't see what that has—"

"Well, the Examiner here says that your structure is just like the one described in a published article—a new kind of domed structure for use on the Moon and other airless sites. The Examiner may have something here; he seems to have written a good Action. Let's see." He looked at the name at the end of the page, on the left side, and he nodded. "I might have known. Herbert Krome. Well, you'll have fun getting this one through." He put the Action on the pile that was to come to me,

and picked up the next piece of mail.

"Well," he said. "Speaking of space, we seem to have a letter from Mr. Arthur C. Clarke. You've heard of him, I presume?"

Susan and I nodded. "Yes," I said. "I've read two of his novels. What's he writing to us for? Copyright problem?"

By this time Mr. Spardleton had the letter open and was glancing down it. "It looks like we have a new client. Mr. Clarke has a patent problem, and he wants to talk to us about it. He says he believes he is the first to conceive of the twenty-four-hour satellite and its use in communications. He wants to know if we can take out a patent on it for him. He'll be in to see us next week."

Susan beat me to the question. "What kind of satellite?"

"The twenty-four-hour satellite. It completes one revolution around the earth every twenty-four hours, which means that it is motionless overhead with respect to a point on the surface of the earth; the earth revolves once every twenty-four hours too. Well, such a satellite would make an excellent relay station for television signals. Mr. Clarke says here that with three twenty-four-hour satellites spaced one hundred twenty degrees apart in a plane around the earth, a television signal can be beamed from any place on the earth's surface to any other place without worrying about cables or line-of-sight problems. He wants us to patent the arrangement for him.

Well, Mr. Saddle, what do you think?"

I had been working with Mr. Spardleton for eight years. I had learned in that time that I must be ready to answer some pretty interesting questions without any time for reflection. Mr. Spardleton always said that a patent attorney must be ready to answer questions by instinct; often there is no time to think. This kind of mental reflex action is necessary when arguing cases before the various tribunals. For instance, in arguing before the Board of Appeals, any of the three members might have had a bad breakfast that morning and begin tossing questions at the attorney. The same thing can happen before the United States Court of Customs and Patent Appeals, except there are five judges to contend with instead of three. I sometimes think judges never eat breakfast.

Anyway, when Mr. Spardleton popped the question to me I instinctively answered, "Oh, I think something patentable can be worked up for a concept such as that. After all, it has all the elements of patentability required by 35 U. S. C. 101 and 102." This is one of the stunts I have learned—always go back to the statutes. Judges are always quoting the statutes, and it behooves an attorney to behave as the judges behave. Besides, when you quote a statute, other people have to stop and think about it. This gives you time to think.

Mr. Spardleton nodded soberly. "Very good, Mr. Saddle. Just how would you write a patent claim for such an invention?" As he spoke Mr. Spardleton took the wrapper off a cigar. When he finished speaking he placed the cigar in his mouth, lit it, and blew great clouds of smoke toward the ceiling. The working day had started. Susan got up and collected the cups and saucers and coffee things, and went out of the office. That left me with a claim to talk about.

"Well," I said. "A process claim would be quite easy. Let's see. It could go: a method of transmitting television signals around the earth—"

"Why only television signals?" Mr. Spardleton said.

I nodded and tried again. "A method of transmitting radio and television signals around the earth—"

"Why only radio and television signals?"

I nodded and tried again. "A method of transmitting electromagnetic radiation from one point to another on the earth's surface without the need for cables and the like which comprises transmitting said radiation to a satellite in orbit around the earth, said satellite being adapted to retransmit said radiation to another point for ultimate reception."

Even as I said it, I could think of things wrong with it. I said so. Mr. Spardleton nodded thoughtfully. "Yes, but that's not bad for a first

try. We are already learning something about Mr. Clarke's process. For instance, you did not find it necessary in your claim to say that the satellite was a twenty-four-hour satellite. Why not?"

"The period doesn't seem to be important. It is only important that a satellite be in position to receive and retransmit."

The cigar was at an angle of about forty-five degrees above the horizontal—the jaunty angle. Mr. Spardleton smiled approvingly. "Very good, Mr. Saddle. So long as one or more satellites is in position to retransmit signals to the ground on to other satellites, it seems to me that Mr. Clarke's system will work. We will have to ask him about that if we write a patent application for him. So much for the method claim. Do you think you could write an article claim for this invention?"

I had been thinking about that, knowing the question was coming. Not knowing what else to say, I naturally went back to quoting statutes. "Well, Section 101 defines the inventions that are patentable, and it says they must be a 'process, machine, manufacture, or composition of matter'. So we have to figure out where Mr. Clarke's invention fits under that Section. We already have the process, so that's out. The invention certainly is not a composition of matter, so it must be either a machine or a manufacture. I don't think this system of his can be called a machine, so it must be a manufacture if it is anything."

"I think so. According to patent law a manufacture is any man-made object or article that is not a machine. How would you define this manufacture in a patent claim? Will you include the earth as a reference point?"

"Possibly. Let's see. How about this: a relay system for electromagnetic radiation comprising a series of satellites in orbit around the earth, said satellites being so positioned that—" I stopped and said, "Then go on from there defining the positions that are necessary to make the system work. Mr. Clarke could tell us what the minimum conditions would have to be."

"Yes. We would need a greater number of satellites if they all were in orbit close to the earth. We'd need fewer as their orbits move out farther. Mr. Clarke says that when they are out just far enough to give them a twenty-four-hour period, three of them will be enough to blanket the earth, and that seems to be the system he prefers. Well, we'll discuss it further with him when he comes in next week. Here, take your mail with you." He shoved one of the piles toward me.

I took it and went back to my office to get to work. I fully intended to do some reading on satellites before our meeting with Mr. Clarke, but I never quite got to it. The only reading I have time for is the reading that has to be done when I get ready to write a case or brief or something like that.

Before I knew it the week had passed, and the day arrived for Mr. Clarke's visit. I went through a series of interviews with Examiners earlier in the morning, so I was feeling out of sorts when I went into Mr. Spardleton's office for the meeting with Mr. Clarke. What happened there did nothing to make me feel any better.

Mr. Clarke was a sandy-haired, quiet man, with a surprisingly gentle manner. He and Mr. Spardleton had been talking about Ceylon, where Mr. Clarke lived these days, and about skin diving. I joined in and listened a while, and then Mr. Spardleton pulled a pad of paper in front of him. I knew he was ready to go to work. He said, "Now, have you ever reduced this concept of yours to writing—ever written it down and shown it to somebody else?"

"Oh, yes," said Mr. Clarke. "I published an article about it. I have a reprint here." He reached into his briefcase and pulled out a thin sheaf of papers and handed them to Mr. Spardleton. I got up and went over to the table to get a pad of paper. As I was picking up the pad I heard Mr. Clarke continue, "I'm quite certain I was the first to conceive of the twenty-four-hour satellite, because, as you can see, I published this article back in 1945. October of 1945, to be exact."

Well, I did not turn around. There was, from Mr. Spardleton, one of those silences that can be felt, an ominous suggestive silence that fills

a room. Mr. Clarke noticed it and said, "What's the matter?" I decided I would not need a pad after all, so I went back and sat down without it.

Mr. Spardleton said, "There is a provision in the patent law of this country that says no one can get a patent if the invention was described in a printed publication more than one year before the date on which the patent application was filed in the Patent Office. Such a publication would be a bar to the grant of a patent; it is called a statutory bar. Your article was published in 1945, so we are barred from applying for a patent for anything that is in it."

Mr. Clarke said, "Is that true even if I was the one who wrote the article?"

"Yes. The bar arises without regard to who wrote or published the article. Mr. Saddle, will you read the pertinent provisions to Mr. Clarke, please?"

I stepped to the bookcase. "The Rules of Practice" was handiest, so I pulled the book down. "Let's see," I said. "That provision would be 35 U. S. C. 102. Yes, here it is. Paragraph (b). 'A person shall be entitled to a patent unless—(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States.' There's a lot more, but that's the provision we want."

"I see," said Mr. Clarke. "Well, I guess that is that."

"Let's take a close look at that article you wrote," said Mr. Spardleton. "Maybe there is a gap in the description; we might be able to find something to try to patent. Let's see. Published in *Wireless World*, a British publication, Volume LI, No. 10, October 1945. Title of the article: 'Extraterrestrial Relays.' Well, the title is certainly explicit enough. I hope the rest of the article isn't as clear."

Mr. Spardleton read, passing each page to me as he finished. As he read he said, "On page 305 you mention television several times, and you have a graph showing the variation of orbital period and velocity with distance from the center of the earth. Page 306 has a couple of figures that show exactly what you are talking about. You even describe the broadcast frequencies that can be used with the satellites. On page 307 you discuss the power needed to operate one of the satellite transmitters; remarkably small, isn't it?" Mr. Clarke nodded.

I read the paper too, and I must say it was complete. Toward the end, on page 308, there was even some discussion on rocket design.

Mr. Spardleton said, "Mr. Saddle, do you see any way around this?"

I thought frantically, but I couldn't think of a thing. I shook my head.

Mr. Spardleton puffed cigar smoke at the ceiling in silence while we watched him. Finally he shook his head and said, "I'm afraid not, Mr. Clarke. In my opinion the bar is

complete. There is no way a patent application on this subject matter can properly be filed for you at this time; you simply cannot sign the oath that says none of these statutory bars exists."

Mr. Clarke nodded. "I was afraid of something like that. Is that true of other countries, too?"

"Yes, at least all the major countries."

I decided to inform Mr. Clarke of what he should have done to obtain a patent on his concept, so I said to him, "You should have filed a patent application within one year of October 1945; that way you'd probably have the patent now."

Mr. Clarke looked at me strangely and said, "Thank you."

Mr. Spardleton puffed out a great cloud of smoke and said half to himself, "Great heavens."

Mr. Clarke and I waited. I noticed that the cigar gradually took up an angle of sixty degrees to the horizontal—the fighting angle.

Mr. Spardleton said, louder now, "No, by heavens, you couldn't have." He turned to Mr. Clarke. "Mr. Clarke, even in 1945 you could not have received a patent. You were too far ahead of your time. You could not have described at that time how to put a satellite in orbit; it couldn't be done then. And the law requires that you describe your invention in 'such full, clear, concise, and exact terms as to enable any person skilled in the art to make and use the same'."

"35 U. S. C. 112," I murmured.

"So back in 1945 when you published your article it would have been impossible for you to meet the requirements of the patent law. Let me see that *Wireless World* article again, please. I seem to remember your saying something to that effect."

Mr. Clarke handed him the article, and Mr. Spardleton scanned it. "Yes. Here in the first column of page 305 you say, 'Many may consider the solution proposed in this discussion too far-fetched to be taken seriously.' Then on page 306 you use the phrase 'seem fantastic'. You also point out that your concept needs for its fulfillment rockets twice as fast as those in the design stage." Mr. Spardleton handed the article back to Mr. Clarke saying, "There's no doubt of it, Mr. Clarke. You could not have got a patent back in those days."

Mr. Clarke said, "As I understand it then, if a man is way ahead, he cannot obtain a patent because he cannot carry out the invention. Then, at the time he *is* able to carry out the invention, it is too late to obtain a patent."

"That's about the size of it. Maybe Abraham Lincoln was wrong when he said, 'The patent system adds the fuel of interest to the fire of genius.'" He stopped and shook his head and said, "There's a case on this point somewhere, but I can't—"

I was surprised. This was one of the few times I had seen Mr. Spardleton at a loss to remember a case.

Mr. Clarke said, "Well, if you could patent all these untried ideas, there would be a lot of crackpot patents coming out all the time."

"Undoubtedly," said Mr. Spardleton. "But today's crackpot is sometimes tomorrow's genius. Besides, crackpot patents would do no harm; we have them now. The good ones, if any, would reap the usual rewards. The whole situation would stimulate people to invent for the future. Nothing but good would come of it."

We all sat quietly and thought about it. I said to Mr. Clarke, "There is one consolation. Even if you had patented your communication system back in—oh, say 1947, the patent would expire in 1964. That's only four years from now, so you probably would not have made any money on the patent anyway."

Mr. Clarke looked at me in surprise and said, "That's right at that. It will probably take just about the remaining four years to set it up."

Mr. Spardleton smiled and said, "I've seen this many times. Seventeen years, the life of a patent, seems like a long time to you young fellows. But it goes by awfully fast."

"I suppose it does," said Mr. Clarke.

"You know," said Mr. Spardleton, "we would not be out of the woods even today in getting this patent for you if we could properly apply for it. Could you—even now—give us all the details necessary to put a satellite in orbit? Or is all that kind of information locked up in a government vault somewhere?"

"I see what you mean. I think we could work something out that would satisfy the Patent Office. It would take a lot of work, though. I—"

"Moffett versus Fiske," Mr. Spardleton shouted. "Please forgive me, Mr. Clarke; I just remembered that case. Moffett against Fiske. Mr. Saddle, will you pull the case, please? It's a Court of Appeals case, decided in the early thirties, about Volume 50 of the Second Series, I think."

I stepped into the library and had the case in less than one minute. It was in Volume 51. I returned and handed the book to Mr. Spardleton. He scanned the case, extracting from it all the pertinent points at an unbelievable speed. He glanced up and said, "Yes, Bradley A. Fiske, a graduate of the United States Naval Academy at Annapolis in 1874, worked his way up to become an admiral. He became concerned about the ability of the United States to defend the Philippines, and in 1910-1911 devised many plans to recapture the Philippines if they should be captured by an enemy. Then he made his invention—a weapon—so that an enemy couldn't capture the Philippines in the first place. He filed his patent application, and the patent issued in July of 1912. Know what the invention was?"

We shook our heads.

"The torpedo-carrying airplane. Admiral Fiske was the inventor of the torpedo-carrying airplane, but he was too far ahead of his time. He

tried to enforce his patent by suing the navy later on. The District Court that tried the case added some nice fuel to the fire by giving the admiral a judgment of \$198,500, a large judgment for those days, but then the Court of Appeals put the fire out; it reversed the District Court. For one thing, the Court of Appeals held that the government was entitled to a license under the patent. Admiral Fiske was known to have inventive ingenuity, and his invention was really a war plan, so the government was entitled to use it." Mr. Spardleton looked up and said, "You know, I can't really quarrel with that part of the decision."

Mr. Clarke nodded. "It makes sense that a weapon invented by a naval officer in the line of duty could be used by the navy."

Mr. Spardleton said, "Yes, although the admiral tried to interest the naval authorities in his invention, and they would have none of it. Well, the Court went on to state the law that now keeps far-sighted men from getting patents. It said there was no airplane in existence capable of carrying the torpedo required, and no torpedo able to sustain the shock of being dropped from an airplane. The admiral said he felt sure the airplanes would rapidly grow bigger and stronger, but the Court said, '... at a time when airplanes were hardly capable of rising from the ground, Admiral Fiske presumes a

plane capable of carrying and discharging a torpedo weighing a ton.' To summarize the whole affair, the Court says here on page 872 that the admiral's invention required a plane then unknown to the world, and a torpedo equally unknown. So they threw him out. And there, Mr. Clarke, you have it. You could not have obtained a patent on your communication system when you invented it back in 1945; your rockets and satellites did not exist. The patent system lags behind technology."

Mr. Clarke nodded and sat quietly staring at the floor. He said, "Then any scheme having in it some feature not yet in existence will not be patentable, and by the time it does become patentable, it may be too late. This is true even though one knows for certain that the nonexistent feature will be developed." He looked up questioningly.

Mr. Spardleton and I nodded, and he continued, "People will be able to patent the hardware and the fuels and things like that, but they cannot patent any of the early, necessary plans and system relating to space."

We nodded again.

Mr. Clarke stood up and said, "It appears that the patent system is not geared to the space age. Now, if you gentlemen will excuse me, I must send a telegram. There's an article I wrote that ... well, there's no sense in letting it be published now. I'll wait a few years."

THE END

OCCASION



SYNOPSIS

KENNETH J. MALONE, FBI Agent extraordinary, is at work on a new case: trying to find out who, or what, is mixing up the Congress of the United States. Senators and representatives are making errors, most of them easily traceable to the computer-secretaries they use. Malone checks and discovers that the machines aren't making the errors; the

technicians in charge of them are. But all of them are making about the same number of errors; something is fishy somewhere.

ANDREW J. BURRIS, FBI Director, has assigned Agent THOMAS BOYD to a similar case, checking on the odd behavior of Congressmen on the West Coast. Boyd and Malone realize that the two cases are connected—and that it's not only Congress that's behaving oddly. Gang wars have reached a new high, labor unions are involved in internal battles and the country as a whole appears to be headed for hell in a handbasket. Malone thinks first of Russian or Chinese sabotage—but

why would anybody want to sabotage the gangs?

He also wonders about the method involved. Since any physical method would involve far too many spies to be plausible, he thinks of psionics. Boyd decides to stay with the physical end of things and goes off to question the technicians. Malone, meanwhile, has a talk with DR. THOMAS O'CONNOR, the Westinghouse psionics expert, who tells him that a psionic force that would make many men act the same way is a new idea and not very plausible. He also mentioned the American Society for Psychical Research and Malone goes to see them.

FOR DISASTER

Third of Four Parts. When the whole world, and all its organizations starts coming apart at the seams, the very disintegration makes the task of finding the saboteurs more nearly impossible.

By MARK PHILLIPS

Illustrated by van Dongen

There he meets a beautiful red-head named LOU, who gets him in to see SIR LEWIS CARTER, President of the Society. Sir Lew promises to send him all relevant material, but his descriptions don't sound very helpful to Malone.

He calls ROSE THOMPSON mentally. She's otherwise known as QUEEN ELIZABETH I, a sweet little old lady who is nutty in the grand manner—but who happens to be telepathic. She firmly believes that she is Queen Elizabeth, and has knighted Malone with the muzzle of Malone's .44 Magnum.

She tells him that she's been getting bursts of strange, disturbing mental "static" without any obvious purpose or cause—and that the bursts come when she's tuned to his mind.

Boyd calls at this point to tell Malone that he's found three spies. The FBI's known about them for some time but he's picked them up now, hoping they have something to do with the present mess. Malone promises to come right over to the Interrogation Room, and goes back to talking with Her Majesty, but the phone rings again; this time it's the material from Sir Lewis, which has arrived. Malone hangs up and goes over to see Boyd, planting Her Majesty in the next room so that she can check on the minds of the spies while they're being questioned.

As the first one, ALEXIS BRUBITSCH, is being questioned, Her Majesty informs Malone via an intercom phone that a burst of "static" has just hit Brubitsch's mind.

In further questioning, Brubitsch says that he and his fellow spies, BORBITSCH and GARBITSCH, have been holding meetings, occasionally trying to sabotage matters in a very small way, but have definitely not done any of the things Malone's interested in. Her Majesty confirms that Brubitsch is now telling the truth.

Borbitsch and Garbitsch are also questioned, and in each case there's a burst of mental "static" during the questioning. Before the burst, the spies are reticent; after it, they can hardly talk fast enough to tell all they know. Later, Malone, Boyd and Her Majesty meet to talk things over, and agree that some sort of psionic force is behind the bursts and that the bursts are connected in some way with the disintegration going on in Congress and elsewhere.

One of the books sent over by Sir Lewis Carter has some material on "telepathic projection," a method of "squirting your thoughts across space and spraying them all over the other fellow's brain." According to the author, CARTIER TAYLOR: "Presto-bingo, he does pretty much what you want him to do." But Her Majesty states flatly that this doesn't work; she's tried it many times over the years and can't do anything at all along those lines.

Malone draws up a report on progress so far, and presents it to Burris, who is delighted with the capture of the spies, and tells Malone that the case is now completed. Malone is surprised by this news,

and asks about the psionic aspect. There is no psionic aspect, Burris says. The trouble with the computer-secretaries has stopped. O'Connor and even Her Majesty agree that the force Malone postulates doesn't exist. And, on top of everything else, Burris has had the water-cooler in the computer-secretary room analyzed. It contains a small amount of Haenligen's Mixture, one of the new psychodrugs which warps judgment. Under its influence, mistakes are only to be expected. Burris tells Malone that the spies obviously put the drug in the water-cooler.

He tells Malone that he's too excited, that he's seeing psionics in everything, and that what he needs now is a good rest. He's sending Malone on vacation. Malone is still worried about the mental static—but when the Director of the FBI tells you to go on vacation, you go. Malone sadly packs—and suddenly realizes there's another theory to account for the facts.

If the mental static acts to change a person's mind—as it apparently did with the three spies—then why couldn't it have acted on Burris, to make him think the case was over and Malone needed to be put out to pasture?

Either Burris was right, in which case Malone had a nice vacation to enjoy—or Her Majesty was right about the mental static, in which case Malone, all by himself, was going to have to get to the bottom of the case. The only question was how to decide between the alternatives.

Malone goes to Las Vegas, checks into the Great Universal Hotel there as Kenneth J. Malone, businessman from Chicago, and, once alone in his room, teleports to Yucca Flats where the Queen has her "court." There he talks to DR. ALAN MARSHALL, Royal Psychiatrist, who tells him that Her Majesty's delusions have definitely not been getting worse, and that she is incapable of a direct lie. A psychologist, DR. SHELDON LORD, confirms this.

Malone goes to the magnificent Throne Room to seek audience with Her Majesty. There he meets LADY BARBARA WILSON, Her Majesty's nurse. The Queen seems worried when Malone comes in, and he tells her he's got a theory to discuss.

But Her Majesty is too worried to listen. She tells Malone that for the past twenty-four hours she's been afraid that he had died. "I've been unable to contact your mind," she says. "And right now, as you stand there, I can't read anything at all!"

"It's as though you weren't thinking at all!"

PART 3

IX



ALONE stared at Her Majesty for what seemed like a long time. "Not thinking at all?" he said at last, weakly. "But I am thinking. At least, I think I am." He suddenly felt as if he had

gone René Descartes one better. It wasn't a pleasant feeling.

Her Majesty regarded Malone for an interminable, silent second. Then she turned to Lady Barbara. "My dear," she said, "I would like to speak to Sir Kenneth alone. We will go to my chambers."

Malone, feeling as though his brain had suddenly turned to quince jelly, followed the two women out of a small door at the rear of the Throne Room, and into Her Majesty's private apartments. Lady Barbara left them alone with some reluctance, but she'd evidently been getting used to following her patient's orders. Which, Malone thought with admiration, must take a lot of effort for a nurse.

The door closed and he was alone with the Queen. Malone opened his mouth to speak, but Her Majesty raised a monitory hand. "Please, Sir Kenneth," she said. "Just a moment. Don't say anything for a little bit."

Malone shut his mouth. When the minute was up, Her Majesty began to nod her head, very slowly. Her voice, when she spoke, was low and calm.

"It's as though you were almost invisible," she said. "I can see you with my eyes, of course, but mentally you are almost completely undetectable. Knowing you as well as I do, and being this close to you, it is just possible for me to detect very faint traces of activity."

"Now, wait a minute," Malone said. "I am thinking. I know I am. Maybe it's not me. Your telepathy might be fading out temporarily, or

something like that. It's possible, isn't it?" He was reasonably sure it wasn't, but it was a last try at making sense. Her Majesty shook her head.

"I can still receive Sir Thomas, for instance, quite clearly," she said. She seemed a little miffed, but the irritation was overpowered by her worry. "I think, Sir Kenneth, that you just don't know your own power, that's all. I don't know how, but you've managed somehow to smother telepathic communication almost completely."

"But not quite?" Malone said. Apparently, he was thinking, but very weakly. Like a small child, he told himself dismally. Like a small Elizabethan child.

Her Majesty's face took on a look of faraway concentration. "It's like looking at a very dim light," she said, "a light just at the threshold of perception. You might say that you've got to look at such a light sideways. If you look directly at it, you can't see it. And, of course, you can't see it at all if you're a long way off." She blinked. "It's not exactly like that, you understand," she finished. "But in some ways—"

"I get the idea," Malone said. "Or I think I do. But what's causing it? Sunspots? Little green men?"

"Not so little," Her Majesty said with some return of her old humor, "and not green, either. As a matter of fact, *you* are, Sir Kenneth."

Malone opened his mouth, shut it again and finally managed to say: "Me?" in a batlike squeal of surprise.

"I don't know how, Sir Kenneth,"

Her Majesty went on, "but you are. It's . . . rather frightening to me, as a matter of fact; I've never seen such a thing before. I've never even considered it before."

"You?" Malone said. "How about me?" It was like suddenly discovering that you'd been lifting two-hundred-pound barbells and not knowing it. "How could I be doing anything like that without knowing anything about it?"

Her Majesty shook her head. "I haven't the faintest idea," she said.

But Malone, very suddenly, did. He remembered deciding to keep a close check on his mental processes to make sure those bursts of energy didn't do anything to him. Subconsciously, he knew, he was still keeping that watch.

And maybe the watch itself caused the complete blanking of his telepathic faculties. It was worth a test, at least, he decided. And it was an easy test to make.

"Listen," he said. He told himself that he would now allow communication between himself and Her Majesty—and only between those two. Maybe it wasn't possible to let down the barrier in a selective way, but he gave it all he had. A long second passed.

"My goodness!" Her Majesty said in pleased surprise. "There you are again!"

"You can read me?" Malone asked.

"Why . . . yes," Her Majesty said. "And I can see just what you're thinking. I'm afraid, Sir Kenneth, that I don't know whether it's

selective or not. But . . . oh. Just a minute. You go right on thinking, now, just the way you are." Her Majesty's eyes unfocused slightly and a long time passed, while Malone tried to keep on thinking. But it was difficult, he told himself, to think about things without having any things to think about. He felt his mind begin to spin gently with the rhythm of the last sentence, and he considered slowly the possibility of thinking about things when there weren't any things thinking about you. That seemed to make as much sense as anything else, and he was turning it over and over in his mind when a voice broke in.

"I was contacting Willie," Her Majesty said.

"Ah," Malone said. "Willie. Of course. Very fine for contacting."

Her Majesty frowned. "You remember Willie, don't you?" she said. "Willie Logan—who used to be a spy for the Russians, just because he didn't know any better, poor boy?"

"Oh," Malone said. "Logan." He remembered the catatonic youngster who had used his telepathic powers against the United States until Her Majesty, the FBI, and Kenneth J. Malone had managed to put matters right. That had been the first time he'd met Her Majesty; it seemed like fifty years before.

"Well," Her Majesty said, "Willie and I had a little argument just now. And I think you'll be interested in it."

"I'm fascinated," Malone said.

"Was he thinking about things or were things thinking about him?"

"Really, Sir Kenneth," Her Majesty said, "you do think about the silliest notions when you don't watch yourself."

Malone blushed slightly. "Anyhow," he said after a pause, "what was the argument about?"

"Willie says you aren't here," Her Majesty said. "He can't detect you at all. Even when I let him take a peek at you through my own mind—making myself into sort of a relay station, so to speak—Willie wouldn't believe it. He said I was hallucinating."

"Hallucinating me?" Malone said. "I think I'm flattered. Not many people would bother."

"Don't underestimate yourself, Sir Kenneth," Her Majesty said, rather severely. "But you do see what this little argument means, don't you? I think you may assume that your telepathic contact is quite selective. If Willie can't read you, Sir Kenneth, believe me, nobody at all can . . . unless you let them."

How he had developed this mental shield, he couldn't imagine, unless his subconscious had done it for him. Good old subconscious, he thought, always looking out for a person's welfare, preparing little surprises and things. Though he hoped vaguely that the next surprise, if there were a next one, would sneak up a little more gently. Being told flatly that your mind was not in operation was not a very good way to start an investigation.

Then he thought of something

else. "Do you think this . . . barrier of mine will keep out those little bursts of mental energy?" he said.

Her Majesty looked judicious. "I really do," she said. "It does appear quite impenetrable, Sir Kenneth. I can't understand how you're doing it. Or why, for that matter."

"Well—" Malone began.

Her Majesty raised a hand. "No," she said. "I'd rather not know, if you please." Her voice was stern, but just a little shaken. "The thought of blocking off thought—the only real form of communication that exists—is, frankly, quite horrible to me. I would rather be blinded, Sir Kenneth. I truly would."

Malone thought of Dr. Marshall and blushed. Her Majesty peered at him narrowly, and then smiled.

"You've been talking to my Royal Psychiatrist again, haven't you?" she said. Malone nodded. "Frankly, Sir Kenneth," she went on, "I think people pay too much attention to that sort of thing nowadays."

The subject, Malone recognized, was firmly closed. He cleared his throat and started up another topic. "Let's talk about these energy bursts," he said. "Do you still pick them up occasionally?"

"Oh, my, yes," Her Majesty said. "And it's not only me. Willie has been picking them up too. We've had some long talks about it, Willie and I. It's frightening, in a way, but you must admit that it's very interesting."

"Fascinating," Malone muttered. "Tell me, have you figured out what they might be, yet?"

Her Majesty shook her head. "All we know is that they do seem to occur just before a person intends to make a decision. The burst somehow appears to influence the decision. But we don't know how, and we don't know where they come from, or what causes them. Or even why."

"In other words," Malone said, "we know absolutely nothing new."

"I'm afraid not, Sir Kenneth," Her Majesty said. "But Willie and I do intend to keep working on it. It is important, isn't it?"

"Important," Malone said, "is not the word." He paused. "And now, if your Majesty will excuse me," he said, "I'll have to go. I have work to do, and your information has been most helpful."

"You may go, Sir Kenneth," Her Majesty said, returning with what appeared to be real pleasure to the etiquette of the Elizabethan Court. "We are grateful that you have done so much, and continue to do so much, to defend the peace of Our Realm."

"I pledge myself to continue in those efforts which please Your Majesty," Malone said, and started back for the costume room. Once he'd changed into his regular clothing again he snapped himself back to the room he had rented in the Great Universal. He had a great deal of thinking to do, he told himself, and not much time to do it in.

However, he was alone. That meant he could light up a cigar—something which, as an FBI Agent,

he didn't feel he should do in public. Cigars just weren't right for FBI Agents, though they were all right for ordinary detectives like Malone's father. As a matter of fact, he considered briefly hunting up a vest, putting it on and letting the cigar ash dribble over it. His father seemed to have gotten a lot of good ideas that way. But, in the end, he rejected the notion as being too complicated, and merely sat back in a chair, with an ashtray conveniently on a table by his side, and smoked and thought.

Now, he knew with reasonable certainty that Andrew J. Burris was wrong and that he, Malone, was right. The source of all the confusion in the country was due to psionics, not to psychodrugs and Walt Disney spies.

His first idea was to rush back and tell Burris. However, this looked like a useless move, and every second he thought about it made it seem more useless. He simply didn't have enough new evidence to convince Burris of anything whatever; psychiatric evidence was fine to back up something else, but on its own it was still too shaky to be accepted by the courts, in most cases. And Burris thought even more strictly than the courts in such matters.

Not only that, Malone realized with alarm, but even if he did manage somehow to convince Burris there was very little chance that Burris would stay convinced. If his mind could be changed by a burst of wild mental power—and why not?

Malone reflected—then he could be unconvinced as often as necessary. He could be spun round and round like a top and never end up facing the way Malone needed him to face.

That left the burden of solving the problem squatting like a hunchback's hunch squarely on Malone's shoulders. He thought he could bear the weight for a while, if he could only think of some way of dislodging it. But the idea of its continuing to squat there forever was horribly unnerving. "Quasimodo Malone," he muttered, and uttered a brief prayer of thanks that his father had been spared a classical education. "Ken" wasn't so bad. "Quasi" would have been awful.

He couldn't think of any way to get a fingerhold on the thing that weighed him down. Slowly, he went over it in his mind.

Situation: an unidentifiable something is attacking the United States with an untraceable something else from a completely unknown source.

Problem: how do you go about latching on to anything as downright nonexistent as all that?

Even the best detective, Malone told himself irritably, needed clues of some kind. And this thing, whatever it was, was not playing fair. It didn't go around leaving bloody fingerprints or lipsticked cigarette butts or packets of paper matches with *Ciro's, Hollywood*, written on them. It didn't even have an alibi for anything that could be cracked, or leave tire marks or footprints behind that could be photographed. Hell, Ma-

lone thought disgustedly, it wasn't that the trail was cold. It just *wasn't*.

Of course, there were ways to get clues, he reflected. He thought of his father. His father would have gone to the scene of the crime, or questioned some of the witnesses. But the scene of the crime was anywhere and everywhere, and most of the witnesses didn't know they were witnessing anything. Except for Her Majesty, of course—but he'd already questioned her, and there hadn't been any clues he could recall in that conversation.

Malone stubbed out his cigar, lit another one absent-mindedly, and rescued his tie, which was working its slow way around to the side of his collar. There were, he remembered, three classic divisions of any crime: method, motive and opportunity. Maybe thinking about those would lead somewhere.

As an afterthought, he got up, found a pencil and paper with the hotel's name stamped on them in gold and came back to the chair. Clearing the ashtray aside, he put the paper on the table and divided the paper into three vertical columns with the pencil. He headed the first one *Method*, the second *Motive* and the third *Opportunity*.

He stared at the paper for a while, and decided with some trepidation to take the columns one by one. Under *Method*, he put down: "Little bursts. Who knows cause?" Some more thought gave him another item, and he set it down under the first one: "Psionic. Look for psionic people?"

That apparently was all there was to the first column. After a while he moved to number two, *Motive*. "Confuse things," he wrote with scarcely a second's reflection. But that didn't seem like enough. A few minutes more gave him several other items, written down one under the other. "Disrupt entire US. Set US up for invasion? Martians? Russians? CK: Is Russia having trble?" That seemed to exhaust the subject and with some relief he went on. But the title of the next column nearly stopped him completely.

Opportunity. There wasn't anything he could put down under that one, Malone told himself, until he

Motive

Confuse things.
Disrupt entire US.
Set US up for invasion?
Martians?
Russians?
CK: Is Russia having trble?

Opportunity

?

Somehow, it didn't seem to be much help, when he thought about it. It had a lot of information on it, but none of the information seemed to lead anywhere. It did seem to be established that the purpose was to confuse or disrupt the United States,



knew a great deal more about method. As things stood at present, the best entry under *Opportunity* was a large, tastefully done question mark. He made one, and then sat back to look at the entire list and see what help it gave him:

Method

Little bursts. Who knows cause?
Psionic. Look for psionic people?

but this didn't seem to point to anybody except a Russian, an alien or a cosmic practical joker. Malone could see no immediate way of deciding among the trio. However, he told himself, there are other ways to start investigating a crime. There must be.

Psychological methods, for instance. People had little gray cells, he remembered from his childhood

reading. Some of the more brainy fictional detectives never stooped to anything so low as an actual physical clue. They concentrated solely on finding a pattern in the crimes that indicated, infallibly, the psychology of the individual. Once his psychology had been identified, it was only a short step to actually catching him and putting him in jail until his psychology changed for the better. Or, of course, until it disappeared entirely and was buried, along with the rest of him, in a small wood box.

That wasn't Malone's affair. All he had to do was take the first few steps and actually find the man. And perhaps psychology and pattern was the place to start. Anyhow, he reflected, he didn't have any other method that looked even remotely likely to lead to anything except brain-fag, disappointment, and catalepsy.

But he didn't have enough cases to find a pattern. There must, he thought, be a way to get some more. After a few seconds he thought of it.

At first he thought of asking Room Service for all the local and out-of-state papers, but that, he quickly saw, was a little unwise. People didn't come to Las Vegas to catch up on the news; they came to get away from it. A man might read Las Vegas papers, and possibly even his home town's paper if he couldn't break himself of the pernicious habit. But nobody on vacation would start reading papers from everywhere.

There was no sense in causing sus-

picion, Malone told himself. Instead, he reached for the phone and called the desk.

"Great Universal, good afternoon," a pleasant voice said in his ear.

Malone blinked. "What time is it?" he said.

"A few minutes before six," the voice said. "In the evening, sir."

"Oh," Malone said. It was later than he'd thought; the list had taken some time. "This is Kenneth J. Malone," he went on, "in Room—" He tried to remember the number of his room and failed. It seemed like four or five days since he'd entered it. "Well, wherever I am," he said at last, "send up some kind of a car for me and have a taxi waiting outside."

The voice sounded unperturbed. "Right away, sir," it said. "Will there be anything else?"

"I guess not," Malone said. "Not now, anyhow." He hung up and stubbed out the latest in his series of cigars.

The hallway car arrived in a few minutes. It was manned by a muscular little man with beady eyes and thinning black hair. "You Malone?" he said when the FBI Agent opened the door.

"Kenneth J.," Malone said. "I called for a car."

"Right outside, Chief," the little man said in a gravelly voice. "Just hop in and off we go into the wild blue yonder. Right?"

"I guess so," Malone said helplessly. He followed the man outside, locked his door and climbed into a duplicate of the little car that had

taken him to his room in the first place.

"Step right in, Chief," the little man said. "We're off."

Malone, overcoming an immediate distaste for the chummy little fellow, climbed in and the car retreated down to the road. It started off smoothly and they went back toward the lobby. The little man chatted incessantly and Malone tried not to listen. But there was nothing else to do except watch the gun-toting "guides" as the car passed them, and the sight was making him nervous.

"You want anything—special," the driver said, giving Malone a blow in the ribs that was apparently meant to be subtle, "you just ask for Murray. Got it?"

"I've got it," Malone said wearily.

"You just pick up the little phone and you ask for Murray," the driver said. "Maybe you want something a little out of the ordinary—get what I mean?" Malone moved aside, but not fast enough, and Murray's stone elbow caught him again. "Something special, extra-nice. For my friends, pal. You want to be a friend of mine?"

Assurances that friendship with Murray was Malone's dearest ambition in life managed to fend off further blows until the car pulled to a stop in the lobby. "Cab's outside, Mr. Malone," Murray said. "You remember me—hey?"

"I will never, never forget you," Malone said fervently, and got out in a hurry. He found the cab and the driver, a heavy-set man with a face

that looked as if, somewhere along the line, it had run into a Waring Blendor and barely escaped, swiveled around to look at him as he got in.

"Where to, Mac?" he asked sourly.

Malone shrugged. "Center of town," he said. "A nice big newsstand."

The cabbie blinked. "A what?" he said.

"Newsstand," Malone said pleasantly. "All right with you?"

"Everybody's a little crazy, I guess," the cabbie said. "But why do I always get the real nuts?" He started the cab with a savage jerk and Malone was carried along the road at dizzying speed. They managed to make ten blocks before the cab squealed to a stop. Malone peered out and saw a nice selection of sawhorses piled up in the road, guarded by two men with guns. The men were dressed in police uniforms and the cabbie, staring at them, uttered one brief and impolite word.

"What's going on?" Malone said.

"Roadblock," the cabbie said. "Thing's going to stay here until Hell freezes over. Not that they need it. Hell, I passed it on the way in but I figured they'd take it down pretty quick."

"Roadblock?" Malone said. "What for?"

The cabbie shrugged eloquently. "Who knows?" he said. "You ask questions, you might get answers you don't like. I don't ask questions, I live longer."

"But—"

The cops, meanwhile, had advanced toward the car. One of them looked in. "Who's the passenger?" he said.

The cabbie swore again. "You want me to take loyalty oaths from people?" he said. "You want to ruin my business? I got a passenger, how do I know who he is? Maybe he's the Lone Ranger."

"Don't get funny," the cop said. His partner had gone around to the back of the car.

"What's this, the trunk again?" the cabbie said. "You think maybe I'm smuggling in showgirls from the edge of town?"

"Ha, ha," the cop said distinctly. "One more joke and it's thirty days, buster. Just keep cool and nothing will happen."

"Nothing, he calls it," the cabbie said dismally. But he stayed silent until the second cop came back to rejoin his partner.

"Clean," he said.

"Here, too, I guess," the first cop said, and looked in again. "You," he said to Malone. "You a tourist?"

"That's right," Malone said. "Kenneth J. Malone, at the Great Universal. Arrived this afternoon. What's happening here, officer?"

"I'm asking questions," the cop said. "You're answering them. Outside of that, you don't have to know a thing." He looked very tough and official. Malone didn't say anything else.

After a few more seconds they went back to their positions and the cabbie started the car again. Ten

yards past the roadblock he turned around and looked at Malone. "It's the sheriff's office every time," he said. "Now, you take a State cop, he's O.K. because what does he care? He's got other things to worry about, he don't have to bear down on hard-working cabbies."

"Sure," Malone said helpfully.

"And the city police—they're right here in the city, they're O.K. I know them, they know me, nothing goes wrong. Get what I mean?"

"The sheriff's office is the worst, though?" Malone said.

"The worst is nothing compared to those boys," the cabbie said. "Believe me, every time they can make life tough for a cabbie, they do it. It's hatred, that's what it is. They hate cabbies. That's the sheriff's office for you."

"Tough," Malone said. "But the roadblock—what *was* it for, anyhow?"

The cabbie looked back at the road, avoided an oncoming car with ter?"

a casual sweep of the wheel, and sighed gustily. "Mister," he said, "you don't ask questions, I don't give out answers. Fair?"

There was, after all, nothing else to say. "Fair," Malone told him, and rode the rest of the way in total silence.

Buying the papers in Las Vegas took more time than Malone had bargained for. He had to hunt from store to store to get a good, representative selection, and there were

crowds almost everywhere playing the omnipresent slot-machines. The whir of the machines and the low undertones and whispers of the bettors combined in the air to make what Malone considered the single most depressing sound he had ever heard. It sounded like a factory, old, broken-down and unwanted, that was geared only to the production of cigarette butts and old cellophane, ready-crumpled for throwing away. Malone pushed through the crowds as fast as possible, but nearly an hour had gone by when he had all his papers and hailed another cab to get him back to the hotel.

This time, the cabbie had a smiling, shining face. He looked like Pollyanna, after eight or ten shots at the middleweight title. Malone beamed right back at him and got in. "Great Universal," he said.

"Hey, that's a nice place," the cabbie said heartily, as they started off. "I heard there was a couple TV stars there last week and they got drunk and had a fight. You see that?"

"Just arrived this afternoon," Malone said. "Sorry."

"Oh, don't worry," the cabbie assured him. "Something's always going on at the Universal. I hear they posted a lot of guards there, just waiting for something to come up now. Something about some shooting, but I didn't get the straight story yet. That true?"

"Far as I know," Malone said. "There's a lot of strange things happening lately, aren't there?"

"Lots," the cabbie said eagerly. He

meandered slowly around a couple of bright-red convertibles. "A guy owned the *Last Stand*, he killed himself with a gun today. It's in the papers. Listen, Mister, funny things happen all the time around here. I remember last week there was a lady in my cab, nice old bat, looked like she wouldn't take off an earring in public, not among strangers. You know the type. Well, sir, she asked me to take her on to the Golden Palace, and that's a fair ride. So on the way down, she—"

Fascinated as he was by the unreeling story of the shy old bat, Malone interrupted. "I hear there's a roadblock up now, and they're searching all the cars. Know anything about that?"

The cabbie nodded violently. "Sure, Mister," he said. "Now, it's funny you should ask. I hit the block once today and I was saying to myself; I'll bet somebody's going to ask me about this. So when I was in town I talked around with Si Deeds . . . you know Si? Oh, no, you just arrived today . . . anyhow, I figured Si would know."

"And did he?" Malone said.

"Not a thing," the cabbie said. Malone sighed disgustedly and the cabbie went on: "So I went over and talked to Bob Grindell. I figured, there was action, Bob would know. And guess what?"

"He didn't know either," Malone said tiredly.

"Bob?" the cabbie said. "Say, Mister, you must be new here for sure, if you say Bob wouldn't know what

was going on. Why, Bob knows more about this town than guys lived in it twice as long, I'll tell you. Believe me, he knows."

"And what did he say?" Malone asked.

The cabbie paused. "About what?" he said.

"About the roadblock," Malone said distinctly.

"Oh," the cabbie said. "That. Well, that was a funny thing and no mistake. There was this fight, see? And Shellenberger got in the middle of it, see? So when he was dead they had to set up this roadblock."

Malone restrained himself with some difficulty. "What fight?" he said. "And who's Shellenberger? And how did he get in the way?"

"Mister," the cabbie said, "you must be new here."

"A remarkable guess," Malone said.

The cabbie nodded. "Sure must be," he said. "Gus Shellenberger's lived here over ten years now. I drove him around many's the time. Remember when he used to go out to this motel out on the outskirts there; there was this doll he was interested in but it never came to much. He said she wasn't right for his career, you know how guys like that are, they got to be careful all the time. Never hit the papers or anything—I mean with the doll and all—but people get to know things. You know. So with this doll—"

"How long ago did all this happen?" Malone asked.

"The doll?" the cabbie said. "Oh,

five-six years. Maybe seven. I remember it was the year I got a new cab, business was pretty good, you know. Seven, I guess. Garage made me a price, you know, I had to be an idiot to turn it down? A nice price. Well, George Lamel who owns the place, he's an old friend, you know? I did him some favors so he gives me a nice price. Well, this new cab—"

"Can we get back to the present for a little while?" Malone said. "There was this fight, and your friend Gus Shellenberger got involved in it somehow—"

"Oh, that," the cabbie said. "Oh, sure. Well, there was a kind of chase. Some sheriff's officers were looking for an escaped convict, and they were chasing him and doing some shooting. And Shellenberger, he got in the way and got shot accidentally. The criminal, he got away. But it's kind of a mess, because—"

A loud chorus of sirens effectively stopped all conversation. Two cars stamped with the insignia of the sheriff's office came into sight and streaked past, headed for Las Vegas.

"Because Shellenberger was State's attorney, after all," the cabbie said. "It's not like just anybody got killed."

"And the roadblock?" Malone said.

"For the criminal, I guess," the cabbie said.

Malone nodded heavily. The whole thing smelled rather loudly, he thought. The "accident" wasn't very plausible to start with. And a search for an escaped criminal that didn't

even involve checking identification of strangers like Malone wasn't much of a search. The cops knew who they were looking for.

And Shellenberger hadn't been killed by accident.

The roadblock was down, he noticed. The sheriff's office cars had apparently carried the cheerful cops back to Las Vegas. Maybe they'd found their man, Malone thought, and maybe they just didn't care any more.

"Wouldn't a State's attorney live in Carson City?" he asked after a while.

"Not old Gus Shellenberger," the cabbie said. "Many's the time I talked with him and he said he loved this old town. Loved it. Like an old friend. Why, he used to say to me—"

At that point the Great Universal hove into view. Malone felt extraordinarily grateful to see it.

He went to his room with the bundle of papers in his hand and locked himself in. He lit a fresh cigar and started through the papers. Las Vegas was the one on top, and he gave it a quick going-over. Sure enough, the suicide of the Golden Palace owner was on page one, along with a lot of other local news.

Mayor Resigns Under Council Pressure, one headline read. On page 3 another story was headlined: *County Attorney Indicted by Grand Jury in Bribery Case*. And at the bottom of page 1, complete with pictures of baffled phone operators and linemen, was a double column

spread: *Damage to Phone Relay Station Isolates City Five Hours*.

Carson City, the State Capitol, came in for lots of interesting news, too. Three headlines caught Malone's attention:

LT.-GOVERNOR MORRIS
SWORN IN AS GOVERNOR
TWELVE MEMBERS OF
LEGISLATURE RESIGN

Ill Health Given As Reason
STATE'S ATTORNEY'S OFFICE: "NO COMMENT"
ON RACKETS CONNECTION
CHARGE.

The next paper was the New York *Post*. Malone studied the front page with interest:

MAYOR
ORDERS
ARREST OF
POLICE COMM.

The story on page 3 had a little more detail:

MAYOR AMALFI ORDERS
ARREST OF POLICE COM-
MISSIONER ON EVIDENCE
SHOWING "COLLUSION
WITH GAMBLING
INTERESTS"

But Malone didn't have time to read the story. Other headlines on pages 2 and 3 attracted his startled attention:

TWELVE DIE IN BROOK-
LYN GANG MASSACRE
Ricardo, Numbers Head, Among
Slain
"DANGEROUS DAN"
SUGRUE LINKED WITH
TRUCKER'S UNION
Admits Connection "Gladly"



HOUSING AUTHORITY DENIES, THEN CONFESSES GRAFT CHARGE

Malone wiped a streaming brow. Apparently all hell was busting loose. Under the *Post* was the San Francisco *Examiner*, its crowded front page filled with all sorts of strange and startling news items. Malone looked over a few at random. A wildcat waterfront strike had been called off after the resignation of the union local's president. The "Nob Hill Mob," which had grown notorious in the past few years, had been rounded up and captured *in toto* after what the paper described only as a "police tip-off." Two headlines caught his special attention:

**BERSERK POLICE CAPTAIN
KILLS TWO AIDES, SELF:**

CORRUPTION HINTED

The second hit closer to home:
FBI ARRESTS

THREE STATE SENATORS ON INCOME TAX CHARGE

Malone felt a pang of nostalgia. Conquering it after a brief struggle, he went on to the next paper. From Los Angeles, its front page showed that Hollywood, at least, was continuing to hold its own:

LAVISH FUNERAL PLANNED FOR WONDER DOG TOMORROW

But the Washington *Times-Herald* brought things back to the mess Malone had expected. All sorts of things were going on:

PRESIDENT ACCEPTS RESIGNATION OF THREE CABINET MEMBERS

New Appointees

Not Yet Named
PENTAGON TO
INVESTIGATE QUARTER-
MASTER CORPS GRAFT
Revelations Hinted In
Closed Hearing Thursday
RIOT ON SENATE FLOOR
QUELLED BY GUARDS
Sen. Briggs Hospitalized
GENERAL BREGER,
MISSILE BASE HEAD,
DIES IN TESTING
ACCIDENT

Faulty Equipment Blamed

Malone put the papers down with a deep sigh. There was some kind of a pattern there, he was sure; there had to be. More was happening in the good old United States inside of twenty-four hours than ordinarily happened in a couple of months. The big trouble was that some of it was, doubtless, completely unconnected with the work of Malone's psychological individual. It was equally certain that some of it wasn't; no normal workings of chance could account for the spate of resignations, deaths, arrests of high officials, freak accidents and everything else he'd just seen.

But there was no way of telling which was which. The only one he was reasonably sure he could leave out of his calculations was Hollywood's good old Wonder Dog. And when he looked at the rest all he could see was that confusion was rampant. Which was exactly what he'd known before.

He remembered once, when he was a boy, his mother had taken him

to an astronomical observatory, and he had looked at Mars through the big telescope, hoping to see the canals he'd heard so much about. Sure, enough, there had been a blurred pattern of some kind. It might have represented canals—but he'd been completely unable to trace any given line. It was like looking at a spider-web through a sheet of frosted glass.

He needed a clearer view, and there wasn't any way to get it without finding some more information. Sooner or later, he told himself, everything would fall into one simple pattern, and he would give a cry of "Eureka!"

There was, at any rate, no need to go to the scene of the crime. He was right in the middle of it—and would have been, apparently, no matter where he'd been. The big question was: where were all the facts he needed?

He certainly wasn't going to find them all alone in his room, he decided. Mingling with the Las Vegas crowds might give him some sort of a lead—and, besides, he had to act like a man on vacation, didn't he? Satisfied of this, Malone began to change into his dress suit. People who came to Las Vegas, he told himself while fiddling with what seemed to be a left-hand-thread cufflink of a peculiarly nasty disposition, were usually rich. Rich people would be worried about the way the good old United States was acting up, just like anybody else, but they'd have access to various sources both of information and rumor. Rumor was more valu-

able than might at first appear, Malone thought sententiously, sneaking up on the cufflink and fastening it securely. He finished dressing with what was almost an air of hope.

He surveyed himself in the mirror when he was done. Nobody, he told himself with some assurance, would recognize him as the FBI Agent who had come into the Golden Palace two years before, clad in Elizabethan costume and escorting a Queen who had turned out to be a phenomenal poker player. After all, Las Vegas was a town in which lots of strange things happened daily, and he was dressed differently, and he'd aged at least two years in the intervening two years.

He put in a call for a hallway car—carefully refraining from asking for Murray.

X

"Business, Mr. Malone," the bartender said, "is shot all to hell. The whole country is shot all to hell."

"I believe it," Malone said.

"Sure," the bartender said. He finished polishing one glass and set to work on another one. "Look at the place," he went on. "Half full. You been here two weeks now, and you know how business was when you came. Now look."

It wasn't necessary, but Malone turned obediently to survey the huge gambling hall. It was roofed over by a large golden dome that seemed to make the place look even emptier than it could possibly be. There were

still plenty of people around the various tables, and something approaching a big crowd clustered around the *chemin de fer* layout. But it was possible to breathe in the place, and even move from table to table without stepping into anybody's pocket. Las Vegas was definitely sliding downhill at the moment, Malone thought.

The glitter of polished gold and silver ornaments, the low cries of the various dealers and officials, the buzz of conversation, were all the same. But under the great dome, Malone told himself sadly, you could almost see the people leaving, one by one.

"No money around either," the bartender said. "Except maybe for a few guys like yourself. I mean, people take their chances at the wheel or the tables, but there's no big betting going on, just nickel-dime stuff. And no big spending, either. Used to be tips in a place like this, just tips, would really mount up to something worth while. Now, nothing." He put the glass and towel down and leaned across the bar. "You know what I think, Mr. Malone?" he said.

"No," Malone said politely. "What do you think?"

The bartender looked portentous. "I think all the big-money guys have rushed off home to look after their business and like that," he said, "everything's going to hell, and what I want to know is: What's wrong with the country? You're a big businessman, Mr. Malone. You ought to have some ideas."

Malone paused and looked thoughtful. "I'll tell you what I think," he said. "I think people have decided that gambling is sinful. Maybe we all ought to go and get our souls dry-cleaned."

The bartender shook his head. "You always got a little joke, Mr. Malone," he said. "It's what I like about you. But there must be some reason for what's happening."

"There must be," Malone agreed. "But I'll be double-roasted for extra fresh flavor if I know what it is."

His vacation pay, he told himself with a feeling of downright misery, was already down the drain. He'd been dipping into personal savings to keep up his front as a big spender, but that couldn't go on forever—even though he saved money on the front by gambling very little while he tipped lavishly. And in spite of what he'd spent he was no closer to an answer than he had been when he'd started.

"Now, you take the stock market," the bartender said, picking up the glass and towel again and starting to work in a semiautomatic fashion. "It's going up and down like a regular roller coaster. I know because I got a few little things going for me there—nothing much, you understand, but I keep an eye out for developments. It doesn't make any sense, Mr. Malone. Even the financial columnists can't make sense out of it."

"Terrible," Malone said.

"And the Government's been cracking down on business every-

where it can," the bartender went on. "All kinds of violations. I got nothing against the law, you understand. But that kind of thing don't help profits any. Look at the Justice Department."

"You look at it," Malone muttered.

"No," the bartender said. "I mean it. They been arresting people all over the place for swindling on Government contracts, and falsifying tax records, and graft, and all kinds of things. Listen, every FBI man in the country must be up to his cute little derby hat in work."

"I'll bet they are," Malone said. He heaved a great sigh. Every one of them except Kenneth J. Malone was probably hopping full time in an effort to straighten out the complicated mess everything was getting into. Of course, he was working, too—but not officially. As far as the FBI knew, he was on vacation, and they were perfectly willing to let him stay there.

A nationwide emergency over two weeks old, and getting worse all the time—and Burris hadn't even so much as called Malone to talk about the weather. He'd said that Malone was one of his top operatives, but now that trouble was really piling up there wasn't a peep out of him.

The enemy, whoever they were, were doing a great job, Malone thought bitterly. Every time Burris decided he might need Malone, apparently, they pushed a little mental burst at him and turned him around again. He could just picture Burris looking blankly at an FBI roster and saying: "Malone? Who's he?"

It wasn't a nice picture. Malone took a deep swallow of his bourbon-and-water and tried forgetting about it. The bartender, called by another customer, put the glass and towel down and went to the other end of the bar. Malone finished his drink very slowly, feeling more lonely than he could ever remember being before.

At last, though, four-thirty rolled around and he got up from the plush bar stool and headed for the Universal Joint, the hotel's big show-room. It was one of the few places in the hotel that was easily reachable from the front bar on foot, and Malone walked, taking an unexpected pleasure in this novel form of locomotion. In a few minutes he was at the great curtained front doors.

He pushed them open. Later, of course, when the Universal Joint was open to the public, a man in a uniform slightly more impressive than that of a South American generalissimo would be standing before the doors to save patrons the unpleasant necessity of opening them for themselves. But now, in the afternoon, the Universal Joint was closed. There was no one inside but Primo Palveri, the manager and majority stockholder of the Great Universal, and the new strip act he was watching. Malone didn't particularly like the idea of sharing his conversation with a burlesque stripper, but there was little he could do about it; he'd waited several days for the appointment already.

As the doors opened he could hear a nasal voice, almost without overtones, saying: "Now turn around, baby. Turn around." A pause, and then another voice, this one female:

"Is this all right, Mr. Palveri? You want me to show you something else?"

Malone shut the door quietly behind him. The female voice was coming from the throat of a semi-naked girl about five feet eight, with bright red hair and a wide, wide smile. She was staring at a chunky little black-haired man sunk in a chair, whose back was to Malone.

"What else do you do, Sweet-heart?" the chunky man said. "Let me see whatever you do. I want some wide-talent stuff, you know, for the place. Class."

The girl smiled even wider. Malone was sure her teeth were about to fall out onto the floor, probably in a neat arrangement that spelled out *Will You Kiss Me In The Dark Baby*. That would take an awful lot of teeth, he reflected, but the stripper looked as if she could manage the job. "I dance and sing," she said. "I could do a dance for you, but my music is upstairs. You want me to go and get it?"

Palveri shook his head. "How about a song, baby? You mind singing without a piano?"

"I don't have anything prepared," the girl said, her eyes wide. "I didn't know this was going to be a special audition. I thought, you know, just a burlesque audition, so I didn't bring anything."

Palveri sank a little lower in the chair. "O.K., Sweetheart," he said. "You got a nice shape, you'll fit in the line anyhow. But just sing a song you know. How about that? If you make it with that, you could get yourself a featured spot. More dough."

The girl appeared to consider this proposition. "Gee," she said slowly. "I could do 'God Bless America'. O.K., Mr. Palveri?"

The chunky man sank even deeper toward the floor. "Never mind," he said. "Go get dressed, tell Tony you got the number five spot in the line. O.K.?"

"Gee," she said. "Maybe I could work on something and do it for you some other time, Mr. Palveri?"

He nodded wearily. "Some other time," he said. "Sure."

The girl went off through a door at the left of the club. Malone threaded his way past tables with chairs piled on top of them until he came to Palveri's side. The club owner was sitting on a single chair dragged off the heap that stood on a table next to him. He didn't turn around. "Mr. Malone," he said, "take another chair, sit down and we'll talk. O.K.?"

Malone blinked. "How'd you know I was there?" he said. "Much less who I was?"

"In this business," Palveri said, still without turning, "you learn to notice things, Mr. Malone. I heard you come in and wait. Who else would you be?"

Malone took a chair from the pile and set it up next to Palveri's. The chunky man turned to face him for the first time. Malone took a deep breath and tried to look hard and tough as he studied the club owner.

Palveri had small, sunken eyes decorated with bluish bags below and tufted black eyebrows above. The eyes were very cold. The rest of his face didn't warm things up any; he had an almost lipless slash for a mouth, a small reddish nose and cheeks that could have used either a shave or a good sandblasting job.

"You said you wanted to see me," Palveri began after a second. "But you didn't say what about. What's up, Mr. Malone?"

"I've been looking around," Malone said in what he hoped was a grim, no-nonsense tone. "Checking things. You know."

"Checking?" Palveri said. "What's this about?"

Malone shrugged. He fished out a cigarette and lit it. "Castelnuovo in Chicago sent me down," he said. "I've been doing some checking around for him."

Palveri's eyes narrowed slightly. Malone puffed on the cigarette and tried to act cool. "You throwing names around to impress me?" the club owner said at last.

"I'm not throwing names around," Malone said grimly. "Castelnuovo wants me to look around, that's all."

"Castelnuovo's a big man in Chicago," Palveri said. "He wouldn't

send a guy down without telling me about it."

"He did," Malone said. He thought back to the FBI files on Giacomo Castelnuevo, which took up a lot of space in Washington, even on microfilm. "You want proof?" he said. "He's got a scar over his ribs on the left side—got it from a bullet in '62. He wears a little black mustache because he thinks he looks like an old-time TV star, but he doesn't, much. He's got three or four girls on the string, but the only one he cares about is Carla Bragonzi. He—"

"O.K.," Palveri said. "O.K., O.K. You know him. You're not fooling, around. But how come he sends you down without telling me?"

Malone shrugged. "I've been here two weeks," he said. "You didn't know I was around, did you? That's the way Castelnuevo wanted it."

"He thinks I'd cheat him?" Palveri said, his face changing color slightly. "He thinks I'd dress up for him or drag down? He knows me better than that."

Malone took a puff of his cigarette. "Maybe he just wants to be sure," he said. "Funny things are happening all over." The cigarette tasted terrible and he put it out in an ashtray from the chair-covered table.

"You're telling me," Palveri said. "Things are crazy. What I'm thinking is this: Maybe Castelnuevo wants to keep this place operating. Maybe he wants to keep me here working for him."

"And if he does?" Malone said.

"If he does, he's going to have to pay for it," Palveri said firmly. "The place needs dough to keep operating. I've got to have a loan, or else I'm going under."

"The place is making money," Malone said.

Palveri shook his head vigorously. He reached into a pocket and took out a gold cigar case. He flipped it open. "Have one," he told Malone.

An FBI Agent, Malone told himself, had no business smoking cigars and looking undignified. But as a messenger from Castelnuevo, he could do as he pleased. He almost reached for one before he realized that maybe, sometime in the future, Palveri would find out who Kenneth J. Malone really was. And then he'd remember Malone smoking cigars, and that would be bad for the dignity of the FBI. Reluctantly, he drew his hand back.

"No, thanks," he said. "Never touch 'em."

"To each his own," Palveri muttered. He took out a cigar, lit it and returned the case to his pocket. The immediate vicinity became crowded with smoke. Malone breathed deeply.

"About the money—" Malone said after a second.

Palveri snorted. "The place is making half of what I'm losing," he said. "You got to see it this way, Malone: the contacts are gone."

"Contacts?" Malone said.

Palveri nodded. "The mayor's resigned, remember?" he said. "You saw that. Everybody's getting inves-

tigated. A couple of weeks ago the Golden Palace guy knocked himself off, and where does that leave me? He's my only contact with half the State boys; hell, he ran the whole string of clubs here, more or less. Castelnuovo knows all that."

"Sure," Malone said. "But you can make new contacts."

"Where?" Palveri said. He flung out his arms. "When nobody knows what's going to happen tomorrow? I tell you, Malone, it's like a curse on me."

Malone decided to push the man a little farther. "Castelnuovo," he said with what he hoped was a steely glint in his eyes, "isn't going to like a curse ruining business." He took another deep breath of tobacco smoke.

"Primo Palveri don't like it either," Palveri said. "You think whatever you like but that's the way things are. It's like Prohibition except we're losing all the way down the line. Listen, and I'll tell you something you didn't pick up around town."

"Go ahead," Malone said.

Palveri blew out some more smoke. "You know about the shipments?" he said. "The stuff from out on the desert?"

Malone nodded. The FBI had a long file on the possibility of Castelnuovo, through Palveri or someone else in the vicinity, shipping peyotl buttons from Nevada and New Mexico all over the country. Until this moment, it had only been a possibility.

"Mike Sand wanted to get in on some of that," Palveri said. "Well, it's big money, a guy figures he's got to have competition. But it's business nowadays, not a shooting war. That went out forty years ago."

"So?" Malone said, acting impatient.

"I'm getting there," Palveri said. "I'm getting there. Mike Sand and his truckers, they tried to high jack a shipment coming through out on the desert. Now, the Trucker's Union is old and experienced, maybe, but not as old and experienced as the Mafia. It figures we can take them, right?"

"It figures," Malone agreed. "But you didn't?"

Palveri looked doleful. "It's like a curse," he said. "Two boys wounded and one of them dead, right there on the sand. The shipment gone, and Mike Sand on his way to the East with it. A curse." He sucked some more at the cigar.

Malone looked thoughtful and concerned. "Things are certainly bad," he said. "But how's money going to make things any better?"

Palveri almost dropped his cigar. Malone watched it lovingly. "Help?" the club owner said. "With money I could stay open, I could stay alive. Listen, I had investments, nice guaranteed stuff: real estate, some California oil stuff . . . you know the kind of thing."

"Sure," Malone said.

"Now that the contacts are gone and everybody's dead or resigned or being investigated," Palveri said,

"what do you think's happened to all that? Down the drain, Malone."

Malone said: "But—"

"And not only that," Palveri said, waving the cigar. "The club was going good, and you know I thought about building a second one a little farther out. A straight investment, get me: an honest one."

Malone nodded as if he knew all about it.

"So I got the foundation in, Malone," Palveri said, "and it's just sitting there, not doing anything. A whole foundation going to pot because I can't do anything more with it. Just sitting there because everything's going to hell with itself."

"In a handbasket," Malone said automatically.

Palveri gave him a violent nod. "You said it, Malone," he added. "Everything. My men, too." He sighed. "And the contractor after me for his dough. Good old Harry Seldon, everybody's friend. Sure. Owe him some money and find out how friendly he is. Talks about nothing but figures. Ten thousand. Twelve thousand."

"Tough," Malone said. "But what do you mean about your men?"

"Mistakes," Palveri said. "Book-keepers throwing the computers off and croupiers making mistakes paying off and collecting—and always mistakes against me, Malone. Always. It's like a curse. Even the hotel bills—three of them this week were made out too small and the customer paid up and went before I found out about it."

"It sounds like a curse," Malone said. "Either that or there are spies in the organization."

"Spies?" Palveri said. "With the checking we do? With the way I've known some of these guys from childhood? They were little kids with me, Malone. They stuck with me all the way. And with Castelnovo, too," he added hurriedly.

"Sure," Malone said. "But they could still be spies."

Palveri nodded sadly. "I thought of that," he said. "I fired four of them. Four of my childhood friends, Malone. It was like cutting off an arm. And all it did was leave me with one arm less. The same mistakes go on happening."

Malone stood up and heaved a sigh. "Well," he said, "I'll see what I can do."

"I'd appreciate it, Malone," Palveri said. "And when Primo Palveri appreciates something, he *appreciates* it. Get what I mean?"

"Sure," Malone said. "I'll report back and let you know what happens."

Palveri looked just as anxious, but a little hopeful. "I need the dough," he said. "I really need it."

"With dough," Malone said, "you could fix up what's been happening?"

Palveri shrugged. "Who knows?" he said. "But I could stay open long enough to find out."

Malone went back to the gaming room feeling that he had learned something, but not being quite sure what. Obviously whatever organiza-



tion was mixing everything up was paying just as much attention to gangsters as to congressmen and businessmen. The simple justice of this arrangement did not escape Ma-

lone, but he failed to see where it led him.

He considered the small chance that Palveri would actually call Castelnuovo and check up on Kenneth J. Malone, but he didn't think it was probable. Palveri was too desperate to take the chance of making his boss mad in case Malone's story were true. And, even if the check were made, Malone felt reasonably confident. It's hard to kill a man who has a good, accurate sense of precognition and who can teleport himself out of any danger he might get into. Not impossible, but hard. Being taken for a ride in the desert, for instance, might be an interesting experience, but could hardly prove inconvenient to anybody except the driver of the car and the men holding the guns.

The gaming room wasn't any fuller, he noticed. He wended his way back to the bar for a bourbon-and-water and greeted the bartender morosely. The drink came along and he sipped at it quietly, trying to put things together in his mind. The talk with Palveri, he felt sure, had provided an essential clue—maybe *the* essential clue—to what was going on. But he couldn't find it.

"Mess," he said quietly. "Everything's in a mess. And so what?"

A voice behind him picked that second to say: "Gezundheit." Malone didn't turn. Instead he looked at the bar mirror, and one glance at what was reflected there was enough to freeze him as solid as the core of Pluto.

Lou was there: Lou Gehrig or whatever her name was, the girl behind the reception desk of the New York offices of the Psychical Research Society. That, in itself, didn't bother him. The company of a beautiful girl while drinking was not something Malone actually hated. But she knew he was an FBI Agent, and she might pick any second to blurt it out in the face of an astonished bartender. This, Malone told himself, would not be pleasant. He wondered just how to hush her up without attracting attention. Knock-out pills in her drink? A hand over her mouth? A sudden stream of unstoppable words?

He had reached no decision when she sat down on the stool beside him, turned a bright, cheerful smile in his direction and said: "I've forgotten your name. Mine's Luba Ardanko."

"Oh," Malone said dully. Even the disclosure of what "Lou" stood for did nothing to raise his spirits.

"I'm always forgetting things," Lou went on. "I've forgotten just about everything about you."

Malone breathed a long, inaudible sigh of relief. If more people, he thought, had the brains not to greet FBI Agents by name, rank and serial number when meeting them in a strange place, there would be fewer casualties among the FBI.

He realized that Luba was still smiling at him expectantly. "My name's Malone," he said. "Kenneth Malone. I'm a cookie manufacturer, remember?"

"Oh," Luba said delightedly. "Sure! I remember last time I met you you gave me that lovely box of cookies. Modeled on the Seven Dwarfs."

Occasionally, Malone told himself, things moved a little faster than he liked. "On the Seven Dwarfs," he said. "Oh, sure."

"And I thought the model of Sneezzy was awfully cute," she said. "But don't let's talk about cookies. Let's talk about Martinis."

Malone opened his mouth, tried to think of something clever to say, and shut it again. Luba Ardanko was, perfectly obviously, altogether too fast for him. But then, he reflected, I've had a hard day. "All right," he said at last. "What about Martinis?"

Luba's smile broadened. "I'd like one," she said. "And since you're a wealthy cookie manufacturer—"

"Be my guest," Malone said. "On the other hand, why not buy your own? Since they're free as long as you're in the gambling room."

The bartender had approached them silently. "That's right," he said in a voice that betrayed the fact that he had memorized the entire speech, word for word. "Drinks are free for those who play the gaming tables. A courtesy of the Great Universal."

He delivered a Martini and Luba drank it while Malone finished his bourbon-and-water. "Well," she said, "I suppose we've got to go to the gambling tables now. If only to be fair."

"A horrible fate," Malone agreed, "but there you are: that's life."

"It certainly is," she said brightly, and moved off. Malone, shaking his head, went after her and found her standing in front of a roulette wheel. "I just love roulette," she said, turning. "Don't you? It's so exciting and expensive."

Malone licked dry lips, said: "Sure," and started to move off.

"Oh, let's just play a little," Luba said.

There was nothing to do but agree. Malone put a small stack of silver dollars on Red, and the croupier looked up with a bored expression. There were three other people in the game, including a magnificent old lady with blue hair who spent her money with a lavish hand. Two weeks before, she wouldn't even have been noticed. Now the croupier was bending over backward in an attempt not to show how grateful he was for the patronage.

The wheel spun around and landed on Number Two, Black. Malone sighed and fished for more money. He felt his precognitive sense beginning to come into play and happily decided to ride with it. This time the stack of silver dollars was larger.

Twenty minutes later he left the table approximately nine hundred dollars richer. Luba was beaming. "There, now," she said. "Wasn't that fun?"

"Hysterical," Malone said. He glanced back over his shoulder. The blue-haired old lady was winning and losing large sums with a speed and aplomb that was certainly going to make her a twenty-four-hour leg-

end by the end of the evening. She looked grim and secure, as if she were undergoing a penance. Malone shrugged and looked away.

"Now," Luba said, "you can take me dancing."

"I can?" Malone said. "I mean, do I? I mean—"

"I mean the Solar Room," Luba said. "I've always wanted to enter on the arms of a handsome cookie manufacturer. It will make me the sensation of New York society."

The Solar Room was magnificently expensive. Malone had been there once, establishing his character as a man of lavish appetites, and had then avoided the place in deference to his real bankroll. He remembered it as the kind of place where an order of scrambled eggs was liable to come in, flaming, on a golden sabre. But Luba wanted the Solar Room, and Malone was not at all sure she wouldn't use blackmail if he turned her down. "Fine," he said in a lugubrious tone.

The place shone, when they entered, as if they had come in from the darkness of midnight. Along with the Universal Joint, it was the pride and glory of the Great Universal Hotel and no expense had been spared in the attempt to give it what Primo Palveri called Class. Couples and foursomes were scattered around at the marble-topped tables, and red-uniformed waiters scurried around bearing drinks, food and even occasional plug-in telephones. There seemed to be more of the last than

Malone remembered as usual; people were worrying about investments and businesses, and even those who had decided to stick it out grimly at Las Vegas and, *enjoy* themselves had to check up with the home folks in order to know when to start pricing windows in high buildings. Malone wondered how many people were actually getting their calls through. Since the first breakdown two weeks before, Las Vegas and virtually every other United States city had suffered interruptions in telephone service. Las Vegas had had three breakdowns in two weeks; other cities weren't doing much better, if at all.

Vaguely, Malone began looking around for handbaskets.

"Let's dance," Luba said happily. "They're playing our song."

On a stand at the front of the room a small orchestra was working away busily. There were two or three couples on the postage-stamp dance floor, whirling away to the strains of something Malone dimly remembered as: "My heart's in orbit out in space until I see you again."

"Our song?" he said.

Luba nodded. "You sang it to me the very first time we met," she said. "At the cookie-manufacturer's ball. Remember?"

Malone sighed. If Luba wanted to dance, Luba was going to dance. And so was Malone. He rose and they went to the dance floor. Malone took her in his arms and for a few bars they danced silently. At the end of that time they were much closer

together than they had been, and Malone realized that he was somehow managing to enjoy himself. Thoroughly.

He thought dimly of the stripper he'd seen when he walked in on Palveri. Like Luba, she had red hair. But somehow, she looked less attractive undressed than Luba did in a complete wardrobe. Malone wondered what the funny feeling creeping up his spine was. After a second he realized that it wasn't love. Luba's hand was tickling him. He shifted slightly and the hand left, but the funny feeling remained.

Maybe it *was* love, he thought. He didn't know whether or not to hope so.

Luba was pressed close to him. He wondered how to open the conversation, and decided that a sudden passionate declaration would be more startling than welcome. At last he said: "Thanks for not tipping my hand."

Luba's whisper caressed his ear. "Don't thank me," she said. "I enjoyed it."

"Why are you doing this?" Malone said. "Not that I don't appreciate it, but I thought you were sore."

"Let's just say that your masterful, explosive approach was irresistible," Luba said.

Malone wondered briefly whether or not they'd turned off the air-conditioning. If he moved slightly away from Luba, he thought, he could breathe more easily. But breathing just wasn't worth it. "I will cheerfully admit," he said, "that I am a ball of

fire in the feathers, as they say. But I didn't realize it was that obvious—even to a woman of your tender sensitivity."

Somehow, Luba had managed to get even closer to him. "You touch me deeply," she whispered into his ear.

Malone swallowed hard and tried to take another breath. Just one more, he thought; that would be all he needed. "What are you doing in Las Vegas?" he asked in what he hoped was a casual tone. It didn't sound very casual, though.

"I'm on vacation," Luba said in an off-handed manner. "I won't ask what you're doing; I can guess pretty well. Besides, you obviously want to keep it under cover."

"Well," Malone said, "I certainly wouldn't want what I'm doing to be broadcast aloud to the great American public out there in television-land." It was a long speech for a man without any breath. Just one more, Malone told himself, and he could die happy.

"I felt that," Luba said. "You know, Mr. Malone—"

"Call me Ken," Malone said.

"It is silly to be formal now, isn't it?" Luba said. "You know, Ken, I'm beginning to realize that you are really a very nice person—in spite of your rather surprising method of attack."

"What's surprising about it?" Malone said. "People do it all the time."

The orchestra suddenly shifted from the previous slow number to a

rapid fire tune Malone couldn't remember having heard before. "That," he announced, "is too fast for me. I'm going to get some fresh air."

Luba nodded, her red hair brushing Malone's cheek silkily. "I'm coming, too," she said.

Surrounding the Great Universal, Malone remembered, was a small belt of parkland. He flagged a hallway car—remembering carefully to check whether or not the driver was the sniggering Murray—and he and Luba piled in and started out for the park. In the car, he held her hand silently, feeling a little like a bashful schoolboy and a little like Sir Kenneth Malone. It was a strange mixture, but he decided that he liked it.

They got out, standing in the cool darkness of the park. Overhead a moon and stars were shining. The little hallway car rolled away and they were alone. Completely alone. Malone swallowed hard.

"Sleuth," Luba said softly in the darkness.

Malone turned to face her.

"Sleuth," she said, "don't you ever take a chance?"

"Chance?" Malone said.

"Damn it," Luba said in a soft, sweet voice, "kiss me, Ken."

Malone had no answer to that—at least, no verbal answer. But then, one didn't seem to be needed.

When he finally came up for air, he said: "Lou—"

"Yes, Ken?"

"Lou, how long are you going to be here? Or in New York? What I mean is—"

"I'll be around," Lou said. "I will be going back to New York of course; after all, Ken, I do have a living to make, such as it is, and Sir Lewis is expecting me."

"I don't know," Malone said, "but it still sounds funny. A girl like you working for . . . well, for the Psychological Research people. Ghosts and ectoplasm and all that."

Suddenly Lou wasn't in his arms any more. "Now, wait a minute," she said. "You seemed to need their information, all right."

"But that was . . . oh, well," Malone said. "Never mind. Maybe I'm silly. It really doesn't matter."

"I guess it doesn't, now," Lou said in a softer tone. "Except that it does mean I'll be going back to New York pretty soon."

"Oh," Malone said. "But . . . look, Lou, maybe we could work something out. I could tell Sir Lewis I needed you here for something, and then he'd—"

"My, my," she said. "What it must be like to have all that influence."

"What?" Malone said.

Lou grinned, almost invisibly. "Nothing," she said. "Nothing. But, my fine feathered Fed, I don't want to be pulled around on somebody else's string."

"But—"

"I mean it, Ken," Luba said.

Malone shrugged. "Suppose we table it for now, then," he said, "and get around to it later. At dinner, say . . . around nine?"

"And just where," Luba said, "will you be before nine? Making improper advances to the local contingent of chorines?"

"I will make improper advances," Malone vowed, "only to you, Lou."

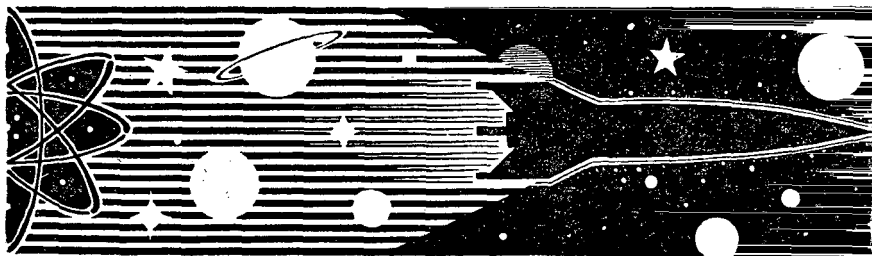
Lou's eyes sparkled. "Goody," she said. "I've always wanted to be a Fallen Woman."

"But I have got some things to do before nine," Malone said. "I've got to work, too."

"Well, then," Lou said in a suspiciously sweet voice, "suppose I talk to Sir Lewis Carter, and tell him to keep you in New York? Then—"

"Enough," Malone said. "Nine o'clock."

(TO BE CONCLUDED)



Continued from page 82

you see why they went to all this trouble?"

"Honestly," I said. "I can't. I'm simply not that important to anyone in the world."

"You're not," she said dryly. "But your eight thousand dollars was. I'd say if people can steal that much money and convince the victim he shouldn't go to the police, it was worth their while. You're not very likely to advertise the claim that you're a psi, are you?"

"No," I admitted.

"And," she said wearily, standing up. "There's always the angle that they'll con you by letting you into their imaginary 'Lodge' and extract some kind of dues out of you in return for keeping quiet about your so-called psi powers when you gam-

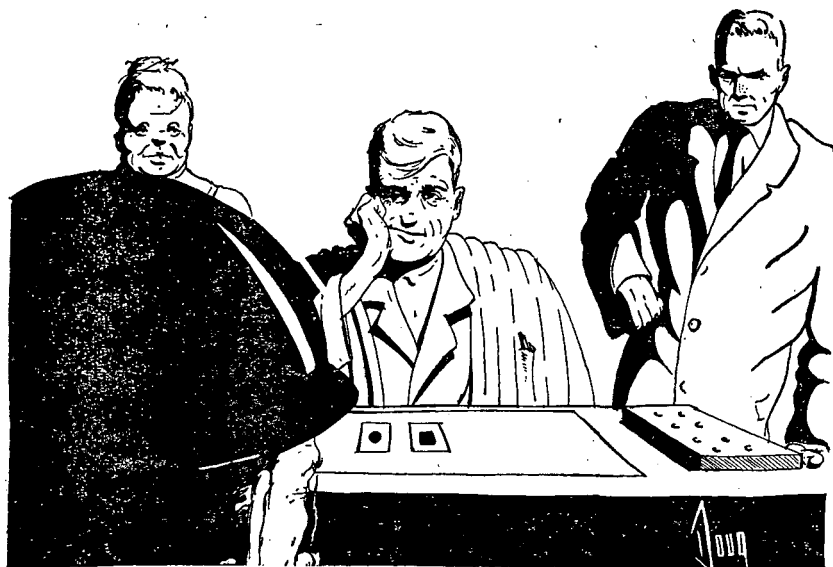
ble. That would serve you right," she concluded.

"For what?" I demanded, beginning to feel pretty icy.

"Being such an easy mark, for one thing," Shari said. "And for seriously thinking that you might be a PC! That, I must confess, I find the most comical of all. You, Tex, a PC!"

"Why is that funnier than being a TK?" I demanded, getting up.

She waved her hand impatiently. "We see a little TK here in the lab right along," she said. "At least, there are those who seem to have a small genuine edge on the cards that we can explain no other way. It's small, but apparently exists. But precognition? That's not simply mechanical or kinetic, like TK. PC is something terrifyingly different." Her voice



hushed as she said it. "It's a kind of sensitivity that has nothing to do with mere kinetics. It defies time!" She looked back at me. "I simply find it comical that you thought of yourself as sensitive to that degree."

"So I've been a fool," I mused.

"In a word, yes. You're a Normal. They suckered you, if you want the jargon."

"Wait till tonight!" I seethed, beginning to feel my anger grow as my fear dwindled. "Let them try to pin the psi label on me! I'll call their bluff!"

The TV-phone on Shari's desk rang, and she pressed the Accept key.

"Let me speak with Tex," a familiar aggressive voice said. It didn't sound as if it would stand for much nonsense.

Shari still had another look of surprise in her. "For you," she said, arching her romantic eyebrows, and turning the instrument around so I was facing the 'scope and screen.

Sure enough, it was Wally Bupp. "Don't do it, Tex," he warned me.

"Don't do what?"

"Don't play tonight. It won't be practical. We mean business."

"So do the laws of libel," I said. "One crack about my having psi powers—"

"Yeah, yeah," he interrupted. "You told us about the lawsuit," he said. "You've got six more days." I could see his hand come up to cut the image.

"Hey!" I said. "How'd you know where to reach me?"

His sharp face split in that vicious

grin. "I forgot to tell you," he said. "Maragon is a clairvoyant, too." The image faded.

"See what I mean?" I said shakily to Shari. "They sure talk a good game. I didn't tell a soul I was coming here. How'd they catch me?"

"Occam's razor," she said. "How many wrong numbers did they try first? Come back to earth!"

"That snake Lefty still worries me," I admitted, going to the door. "Shari, I know I've acted nuts, but they nearly got me to flip! Thanks for helping me. I couldn't have stood it to know I was a snake. You got my mind back on the track again."

"Not enough to keep from going right back to the poker table," she observed.

There didn't seem any point to telling her how badly I needed the dough. Anyway, I had to prove a point. I was a Normal. I left.

There were already seven at the table when I got to Nick's after dinner. He didn't want to deal me in.

"Seven's a full table, huh, Tex?" he said.

"Not for stud, it isn't," I told him. "You can deal to ten gamblers."

"Dealer's choice tonight," he protested, while some of the gamblers eyed me curiously. "Can't deal to more than seven for three-card draw."

"I told you where I stood on this thing last night," I snapped.

"All right," Nick said warmly. "So maybe I'd like the whole stink to cool down a little, huh?"

"Not with my dough in it, Nick!" I told him, being pretty free with something I didn't have much of any more. "You'll deal me in tonight or I'll find another banker!"

A gink with a long, scrawny neck put down his highball and rose from the table. "Gosh, fellows," he said. "I'm sort of a fifth wheel around here, I guess. Here, neighbor," he insisted. "Take my place." He was all grins and teeth and bobbed his head around with a rural awkwardness.

"You don't have to do that, Snead," Nick started to say.

"Just as soon kibitz," he insisted, drawing up a chair behind me as I took his seat. "You don't mind, neighbor?" he asked anxiously. I shook my head and yanked out my much-depleted wallet to pay for chips. It took all that the Lodge hadn't.

Four hands were enough. On the first, at stud, I had aces back to back and picked up a pair of sevens on the next two cards. Two pair, aces high, will win about ninety-nine out of a hundred stud hands. I chewed down on the panetella in my teeth and bet them like I had them. The tilt of my cigar showed just a little too much confidence as a way to convince some of the gamblers that I was bluffing. It must have been a good act, for three of them stayed with me all the way. None of them had much showing, and regardless of what their hole cards were, by the time we had our fifth cards, I had them all beaten.

It was raise against raise, but

somebody finally called, and I turned over my ace in the hole. "Aces and sevens, gamblers," I grinned, reaching for the pot.

"I see the sevens," a fat-faced man across the table said around his cigar. "But what's this jazz about aces?"

So help me Hannah, my hole card was a two! I tried to cover it up. "You'll have to admit I bet them like aces," I said.

Somebody laughed, but not very hard.

I paid mighty close attention to what I was dealt the next hand, and turned down a drink to make sure I was cold sober. Unfortunately, I got all screwed up over what one of the *other* gamblers had. It had been a bunch of spinach when I'd been betting my pair against it, but it was one good-looking straight when he flipped the card in the hole.

The third hand I dropped out before the fourth card. After a gambler raked in that pot, my kibitzer asked me: "How much do you have to have on the first three cards to stay in the pot?"

"Any pair would convince me," I said. "Why?"

"What was the matter with the kings you had showing?" he asked. They were still on the table in front of me, king of hearts and king of clubs.

I scarcely dared bet the fourth hand. We had switched to three-card draw. I discarded two small diamonds, keeping a pair of nines and an ace for a kicker. On the draw I

got one card that claimed to be the fourteen of eagles and one on which there was a message reading: "These hallucinations are sent to you with the courtesy of the Manhattan Chapter of the Lodge. Are you finding it practical?"

I threw the hand in and stood up, shaking. "Since when don't you bet a full house?" my kibitzer demanded, after the hand was won. He picked up what I had thrown in. The fourteen of eagles turned out to be a nine, and the card with the hallucination message the other ace.

"Got to confuse the other bettors," I said. "One of the fundamentals of poker."

There really weren't enough chips left in front of me to bother cashing in. I just left them lying there and wandered down to the street, flat broke.

Wally Bupp was right. I hadn't found it practical. All of a sudden I saw that it really didn't matter whether I were a psi or not. The important question had always been whether Lefty and the others were psis. If so, they might be on the level about my psi powers—which meant I was right back being a snake again. And if they weren't, it was a simple case of blackmail, which at least let me rejoin the human race. On that basis, I was in tough shape. Occam's razor has no answer for hallucinations. Either you've had them or you hadn't. I had. Nobody would change my mind on that score. That made Snead, and presumably Lefty, a psi. And me, too.

But—what if they were mistaken? Shari's tests looked conclusive to me. I saw that as the only way out. I had to insist on a test in their presence. And that meant I had to get in touch with Wally Bupp.

My kibitzer came stalking out of the building, gangling and gawky. "Didn't mean to spoil your luck, neighbor," he said.

"Don't give it a second thought, Snead," I said.

"Call me Mortimer," he said. "You mind a word of advice, neighbor?" he asked, bobbing his head around and grinning in a self-conscious way. "Next time, *bet* that fourteen. Highest card in the deck. Beats all the others!"

"You lousy snake!" I gasped. I'd learned better than to take a poke at him. Lefty had taught me my lesson on that one. Snead might turn out to be a TK as well as a hallucinator, and I wanted no more heart attacks.

He handed me a card. "There'll be somebody at this number all night, neighbor. Gamblers Anonymous."

He faded off down the dark street. The card merely said:

"Manhattan Chapter NO 5-5600"

Shari must have had a swell time at dinner with some guy who didn't gamble, because she didn't come home until nearly midnight. I know because I dialed her apartment every ten minutes until I got her face on the screen.

She was still dressed for dinner and had a sort of tiara over her thick tresses. "What is it?" she said.

"I'm not a psi?" I demanded.

"No!" she said. "Hasn't this gone —?"

"Well, then, am I crazy?" I cut in on her.

Her lips compressed. "It's a lot more likely," she decided. "Why?"

"Either I'm nuts," I told her. "Or those characters really are psis." She was reaching up to cut the image when I caught her interest. "Is there such a thing as a psi who can induce hallucinations?" I demanded.

"No." Flatly.

"They've got me sold that they can do it," I said. "What does Occam's razor say about that?"

"You idiot!" she exploded. "They don't believe you are a PC any more than I do!" She was sure sensitive about my having any precognition!

"O.K.," I said. "Then *you* make them eat it. Aren't you the one who knows all about exposing charlatans?"

That was the right button. "Certainly," Shari said.

"I'll pick you up in ten minutes," I said.

"Now? Midnight?"

"This is the pay-off," I said, and cut the image. I dialed the number Snead had given me.

"Manhattan Chapter," the Operator cartoon said.

"This is George Robertson," I said. "Mortimer Snead told me there'd be somebody there to talk to me. Maybe Lefty."

"Snead?" the cartoon said, frowning. "No one here by that— Oh! Wait a moment. Dr. Walter Bupp

will talk to you," the cartoon said, and Wally's face appeared on the screen.

"It wasn't practical," I admitted.

"Six days early," he observed.

"Nuts," I said. "Look, you've got me convinced you are a psi. That Snead puts on a terrific show.

"Snead?" he frowned. "Oh!" He laughed. "Yeah," he agreed condescendingly. "He's red hot, every now and then."

"But you haven't sold me that *I'm* a PC," I growled. "I've been tested. I'm not. Now I want you to get off my back. You and the rest of them! Lay off!"

He shook his head. "The Lodge acts unilaterally on this," he said soberly. "You've got psi powers. You'll accept our direction in their use. Or else, Tex."

"All I ask is a fair test," I said desperately. "Under laboratory conditions."

He gave me an address. "Come any time," he said.

"That's me walking in," I told him.

Shari had to pay off the 'copter when we got there. It wasn't the brownstone I had seen the night before. This place was a medium-sized office building, say a hundred stories or so, quite new. There was no identification on its front other than the street number. The Directory in the silent and unpopulated lobby was names, all names. But Dr. Walter Bupp was one of them, in 7704. Shari and I rode the elevator to seventy-seven in chilly silence.

The corridor was dim, with its lights on night-time setting. Stronger light came from an open door quite a way down the hall. It had to be Bupp's office, and it was.

Wally certainly wasn't surprised to see Shari. He shook hands with her briefly, pushing his sharp chin out at her in his gamecock fashion. "Your mate?" he asked me.

"Certainly not," she told him. "We're . . . uh . . . colleagues at the University."

"That's not what Pheola says," he told her sourly, pointing to chairs we could take.

"Pheola?" Shari questioned.

"A powerful PC," Wally said. "She predicted you would accompany Tex tonight."

"Oh, *really*," Shari said scathingly.

"I was there," I told her. "She really did."

"Let's not be diverted by side-shows," Shari said. "We're here to measure the psi powers of Tex Robertson, not to talk over the reputed clairvoyance of some dim and misty character."

"Precognition," Wally corrected her. "Stick around, Dr. King. Pheola will be down a little later. She thinks Tex is something special."

That was not going to make a good interchange, so I cut in. "Dr. King is a professional in this field—" I started.

Wally waved a disgusted hand. "We know all about Dr. King and her field," he said. "Proving that psi powers don't exist, right, Dr. King?"

Shari bristled. It was hard to stay

friendly in any talk with Bupp. "You know my field," she said, about twenty degrees below zero. "I accept any and all evidence, regardless what it proves! There's a lot of talk about psi powers, but precious little that can ever be detected under laboratory conditions!"

"Oh, well," Wally Bupp grinned. "That's not so strange. All members of the Lodge are cautioned to stay away from laboratories. You've been testing Normals. What do you expect for results?"

"Then *you* show me!" she stormed.

"Go on with you," he grinned. "I thought it was Tex's powers you wanted tested. Mine are irrelevant."

"I *thought* so," she said triumphantly. "Charlatan!"

For a moment the grin flickered off his face and I tensed to catch Shari if she should start to drop. But I guess he thought better of it.

"Some other time," he said. "Let's get this over with. Make it simple. You may have some statistical objections to my technique tonight, but I'm not looking for fringe effects. If this hot-eyed swain of yours is any good at all, he'll bat a thousand." He got a deck of cards out of his desk drawer and fanned it out face up so that he could pluck the two of spades and the two of hearts from the deck. The rest he put back in his desk.

He put his hands under the desk, with the two cards in them, produced the cards again, face down, and laid them in a thin stack on the desk before all of us.

"What's on top?" he said. "Red or black?"

"How will you score?" Shari insisted. He scowled at her and tossed a squeeze counter across the desk.

"You score," He said. "It really isn't necessary. Tex will either be right all the time or it won't matter."

But before I could call the top card, the office door opened behind us. I looked around, expecting Pheola. Instead it was Milly with the down, down hose. Only this time she was decently dressed in a dark two-piece suit and wore make-up. She certainly was no more talkative than before, nor did Wally introduce her. Shari was perfectly equal to the occasion and looked through Milly with composure. This takes about three generations of overbreeding.

"Try it," Wally insisted. "What's on top?"

I hit it. Then I missed it. Then I hit three in a row. It wasn't fast work, because Wally hid the cards under his desk after each guess, shuffled the two cards around and then laid them before me again. This went on for about twenty minutes. At that point Shari spoke.

"That makes exactly three hundred tries," she said, looking at the counter in her hand. "Have you been keeping score, Mr. Bupp?"

"I thought *you* were."

"So I was," she snapped, throwing up her tiaraed head. He sure brought out the worst in people. "Tex has been right exactly one hundred and fifty times. He's never been more

than five tries to the good in the whole series."

"Interesting," Wally said.

I took my first decent breath in the day. "This ought to let me off the hook," I said to him. "Are you convinced?"

He shrugged. "How about it, Milly?" he asked.

"A random sample," she said. "He doesn't want to score. He didn't try."

Shari was ready for that one. She turned and spoke to Milly: "You have ways of knowing what Tex was thinking?" she asked sweetly.

"Yes."

"Name any three!" Shari lashed at her furiously. The solid woman wasn't the least bit bowled over.

"Read his mind," she said matter-of-factly. "Just like I can tell that you're getting ready to screech 'Charlatan!' at me, and like you think I got a cast-iron girdle and homely shoes. Well, they're comfortable, dearie, which is more than you can say for those high-heeled slippers of yours. That left little toe of yours is killing you, dearie!"

Shari's lips moved, but her mouth was as empty of sound as her face was of blood. Milly had hit the bull's-eye.

"Everybody relax a moment," Wally said. "Tell me, Dr. King, what's your attitude toward PC?"

"I don't have any!" she snapped. "It's a phenomenon. I have as much attitude toward it as I do toward osmosis or toward peristalsis. None."

"Would you consider a person fortunate to possess the power of precognition?" Wally asked her.

Shari's head came up. "If there were such a thing," she said, much more quietly. "Yes. I should imagine that precognition would be a powerful talent."

"If you have no emotional bias against psi as such," he went on smoothly, "you'd be happy for Tex if he were a PC."

Her eyebrows drew together. She looked at me, veiling her violet eyes as if to hide her thoughts from us. "I would consider Tex quite fortunate. But only if you could show that such a thing really existed," she said more loudly.

"How about you, Tex?" Wally asked me.

"Nuts," I said. "You can't make me like the idea of being a snake, no matter how you dress it up." I shook my head. "Psi powers are the mark of a diseased mind, for my dough. They're pure poison. What have they ever done for you?" I insisted rudely.

"Made me a surgeon," he said.

"Never!" Shari said hotly.

"Ask Tex," Wally suggested. "He felt me put a lift on his coronary artery. I'm a TK surgeon—I've got enough TK to put clamps on inaccessible arteries and feel out mechanical disorders of the body. Check it. I'm on the staff at Universal Hospital."

"And what are you doing here?" she argued.

"Meeting my obligation to the Lodge," he said. "This is where I got my training, right in this building."

"I thought that brownstone house was the Lodge," I said.

"No," he said. "That's just the Grand Master's residence. The Lodge provides quarters for its brass. This building is the real chapter house."

He heaved a long sigh and dug into his drawer again. "You can beat it, Milly," he said. "Thanks."

"I know," she told him from the door. She had started out long before he spoke. Impressive stuff, but it got a sniff from Shari.

What Wally got out of his desk had a refreshing shape and color. It was oblong. It was green. It was money. It was, for a fact, a stack of one thousand dollar bills.

Wally shuffled the two cards under his desk again and piled them two-deep in front of Shari and me.

"You heard what Dr. King said," Wally reminded me. "She'll love you no less for being a PC. Now we'll play the game a little more realistically. Every time you guess the top card right, Tex, I'm going to give you a thousand dollars. No strings attached. When you miss, you give one back. But if you have none to give, you don't have to pay. You can't lose. Maybe you can win. All set?"

"One minute," I demanded. "Shari, is this a fair test?"

She shrugged. "Why not?"

"Is it gambling?"

She smiled faintly, her first sign of relaxation. "Hardly," she said.

"Then you don't mind if I win?"

She found a laugh this time. "You can *try*," she corrected me.

"This could be our nest egg," I said.

She blushed. "If that's a proposal," she said tartly. "The answer is 'no.'"

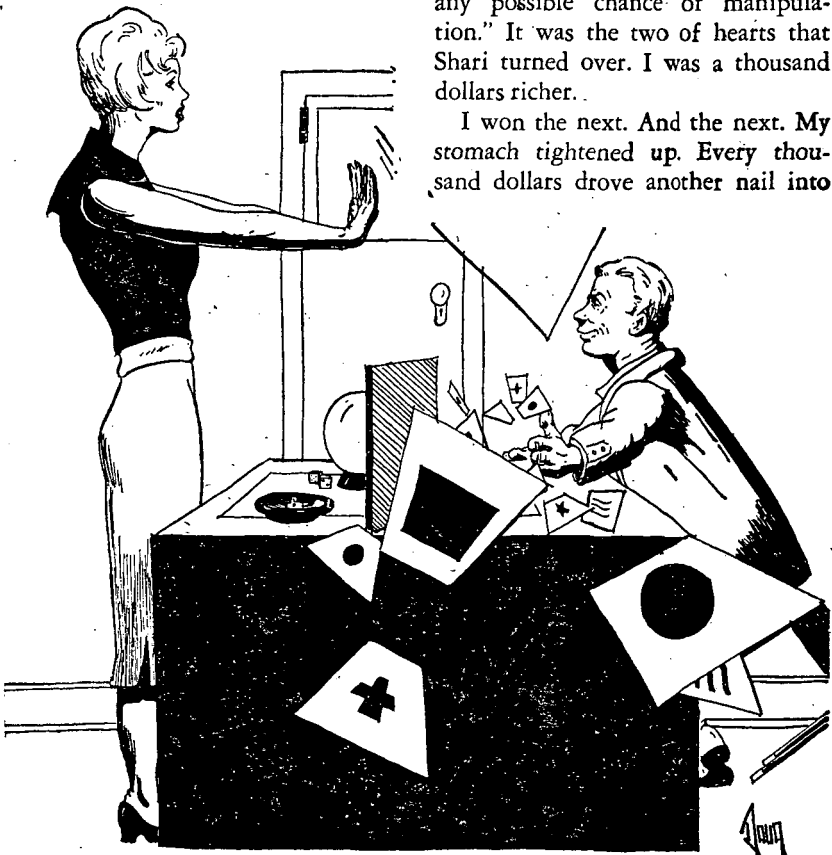
"I'll talk to you later," I growled. "When I'm richer!"

I looked at the back of the card on the desk. Wally was leaning back in his swivel chair and wasn't within four feet of the pasteboards. If there was any hanky-panky, I couldn't see how he planned to work it.

"Heart," I said.

"Why don't you turn it over, Dr. King?" Wally suggested. "Remove any possible chance of manipulation." It was the two of hearts that Shari turned over. I was a thousand dollars richer.

I won the next. And the next. My stomach tightened up. Every thousand dollars drove another nail into



my coffin—went that much farther to prove I was a snake. Well, I wasn't!

I missed the fourth one.

"Cut that out?" Wally snapped at me. I jumped a foot. I *had* tried to miss it.

With a sickening realization of doom, I called the next four right.

"Stop it!" Shari screeched, grabbing at the cards. "I'll shuffle!" she announced. She hid the pasteboards from me with her body, and took care, in putting them before me on the desk, that I didn't see the face of the bottom card.

Her eyes were violet pools of hate and rage and she spoke to me: "Now try it!"

"Spade!" That made eight straight.

Even Shari succumbed to the ghastly fascination of it. There had been fifty thousand dollars in the stack of bills Wally had taken from his desk. Soon all fifty of the bills were stacked in front of me. Except for the one time I had tried to, I had never missed.

Lefty stuck his sharp chin at Shari. "I'd call that a fairly convincing string," he said. "Will you concede, Dr. King?"

She gave him an awful mouthful of silence. A pitiless blackness descended over my spirit. I looked at the money in front of me. It had been like selling my soul to the Devil. There it was, all that money. All I'd had to give up was any claim to being a human—I wasn't a Normal any more. I was a psi!

Then Shari was talking, in short gasping bursts, half choking, half sob-

bing. "No wonder Tex is in a whirl," she said. "I've seen some good illusions, worked by the best light-fingered operators in the country, but nothing to compare with this! Just let me see you match this charade in *my* laboratory! With *my* apparatus!" She meant her playing cards.

Wally was sweet and reasonable. "You dealt and shuffled most of the hands yourself," he reminded her. "I never touched the cards. How could I control them?" He grinned a little more sharply. "And you can't call it TK," he went on. "Did you feel the cards move or twitch or resist you as you shuffled them? It has to be PC."

She blew her top on that one. It's sickening to see someone you love goaded past all endurance and break down into screams and wild gestures.

"Aah!" she cried, shaking her head blindly. "Before I believe that Tex Robertson can feel things that I can't feel, I'll accept *any* other explanation. What are those cards of yours? Small TV screens? Is this more electronic hokum?"

Wally quietly tore one of the cards in two. "Now I understand," he said. "That's the real reason."

I looked my surprise at him, and Shari quieted down just a little. "Relax, Dr. King," he advised her. "The possession of psi powers isn't a mark of moral superiority. Part of the problem in the Lodge is that psi powers are possessed as often by evil and stupid people as by the good and intelligent. Yes, I know that you think you *deserve* precognition, Dr. King. But that ain't the way the ball

bounces. You're a Normal, Dr. King, and that's all you'll ever be."

He got a face full of fingers for his trouble. Shari leaped to her feet and really slapped him in the kisser. She stormed out of there. I started to follow, but a tug at my earlobe signaled me to stop.

"Hold on a minute, Tex," Wally said sympathetically. "You're one of us now."

I had to go after her. "I love her," I said hopelessly. "I can't see her hurt and upset like that. I've got to—"

But he was shaking his head. "You haven't got a chance," Wally said. "She'll never forgive you for having precognition. *That's* why she made the study of psi her life-work. She's wanted PC for herself, and was sure she was pure enough of heart to deserve to have the power. Well, she doesn't have it, and she'll hate you for having what she thinks she deserves. Forget her."

Talk about your cup brimming over! Well, if I had to get used to being cut off from the human race, perhaps Shari was the place to start. That's what happens to superhumans!

There was one desperate hope. "This wasn't hallucination?" I tried.

"No, Tex," he said calmly. "This was on the level. Just for fun," he went on. "Can you do it when there isn't any money riding on it?"

Reluctantly I came back to his desk and looked down at the back of the top card. "Heart," I said dully. I hit ten in a row for him. The spade

was on top four times, the heart six times.

"And was that on the level?" I asked.

He scowled at me and chewed his thin lips. "Yeah," he said.

"That settles it," I said, sagging back into my seat. "I'm a snake. A rotten PC!"

"Don't you believe it!" Wally growled, lunging out of his chair. He started to pace back and forth across the office, his chin stuck way out ahead of him as he prowled. "I don't know what you are, Tex," he declared. "But you're no PC!"

"I'm a Normal after all!" I gasped, feeling a surge of blessed relief.

He swiped at the air with a hand. "Don't be silly!" he snapped. "You've got a psi power so incredible that—" He whirled on me while I died for good.

"You explain it," he insisted. "After your lovely Dr. King flew out of here, I shuffled the cards ten times under the desk, and you hit ten in a row, right?"

"Right." Dismally.

"I cheated on the shuffle," he told me. "I used TK to make sure that I put the two of spades on top all ten times."

"No," I insisted. "Six times the heart was on top. You turned them over yourself."

"That's just it," he whispered, leaning toward me. "*I put that spade on top every time! I did!* But when I turned it over, more than half the time it was a heart. What did you do?"

"You mean I'm a hallucinator?" I asked. "Look, this is getting ridiculous! I was kidding myself, too?"

"Nonsense. It was real." His face jerked in surprise. "You couldn't!" he gasped, as the idea hit him. "But you did!" he reminded himself. "Wait till Maragon hears this!"

And then he told me. It couldn't be, I knew. But it *was*. He proved it to me—or I proved it to us.

At some stage you have to get excited about it, if it's no more than a grisly fascination. At that, it was dawn before we could stop our intoxicated talk. Maragon had been yanked out of bed again, and when he heard the news, woke up a darned sight faster than the night before. Pheola of the race-horse legs joined us, and several other psis as well. Before it was over the Grand Master had put on a ridiculous piece of regalia and mumbled me into probationary membership in the Lodge. There was nothing creepy about the ritual—only about the way I felt.

I guess, if we hadn't gotten hungry, we'd be there yet. Wally had one last little wrinkle for me as I started down the corridor for the elevator.

"Pheola," he called.

"Yes, darlin' Billy," she said, coming to his side.

"How's Tex going to make out with that overeducated iceberg he's hot after?" he asked her. I flinched at the thought of Shari—I was getting used to considering her a memory.

Pheola looked into the corner for a moment. "Oh, yum!" she said, smiling

and showing the braces on her teeth. She kissed me. I think I was about as startled as Wally was. "Just so you let her be the only Cassandra," she said. "And you call that an iceberg?" She looked at me curiously. "You'd better start eating red meat, Tex," she told me, and would say no more.

I had a heck of a time getting Shari on the 'phone. An hour before lunch she caved in and accepted my call.

She looked pale and shaken, even in the black and white of the screen. "Please," she said. "I've had all I can stand. You stayed there all night, didn't you?"

"I'm not a PC, Shari," I said.

Nothing else would have caught her ear.

"Not?"

"Proved it before I left," I said. "I can prove it to you, too."

"Ridiculous. You can't prove a negative."

"Well, in a manner of speaking. What I can do is show you how the card trick was worked."

I had her hooked. "You mean it? It really *was* a trick after all?" she said, slumping.

"It sure wasn't PC," I said. "Let me show you."

"At the lab," Shari said. "I'll be there in ten minutes."

A couple graduate students were there, fooling around with Rhine cards when we arrived, and Shari chased them out without ceremony. She locked the door behind them. We

were to have privacy. She didn't bother with her lab coat this time.

"Show me," she insisted.

"The apparatus, Shari," I grinned. She gave me a deck of cards, and pulled out the two of hearts and two of spades.

"We'll do it face-up," I said. "So you can see how it's done!"

I laid the two cards side by side on her blotter, face up. "Now put a finger on each one." I directed. "And watch them like a hawk. What card is under your right forefinger?"

"Heart," Shari said.

"Wrong," I told her. "Spade."

They could have heard that shriek clear to Keokuk. Good thing we were in a sound-proof laboratory.

I got her calmed down after a while. "It didn't happen!" she insisted, clutching at her temples.

"If you won't holler," I said. "I'll do it again. Remember, it's just a phenomenon, like osmosis."

"It is *not*!" she gasped.

But I did it for her. Ten times in a row. The cards changed under her fingers without moving.

"So it's not PC," I said.

"Oh, Tex, but what is it?"

"You agree it's real?"

Shari nodded. "It's real. You can do it, whatever it is. What *is* it?"

"TK," I told her. "Telekinesis."

"Nonsense," she said. "Are you trying to make me believe I wouldn't have felt the cards move if you'd snapped them out from under my fingers? I was pressing hard on them every time."

"I didn't move the cards," I explained.

"But you said it was telekinesis!"

"Sure. I just moved the molecules of pigment in the printing ink and reassembled them in the opposite cards. You didn't expect to feel molecular movement, did you?"

"No. Then it really happened?" I nodded. "What an incredible power!" she said. A glow of satisfaction spread over me. "Can you really test this molecular hypothesis?" she asked.

I told her of the hours of demonstrations I had made during the night. "The perception on scanning part of it goes on at some subconscious level, Shari," I said. "But we had evidence that it can be made completely conscious."

She shuddered and hugged her arms to herself. "I hate to say this to you," she said. "But you're a freak."

I took a deep breath and smiled. "Unique is the way the Grand Master puts it," I said, pleased with myself. "He says it has terrific possibilities." And then it hit me, that delicious thought that I was among the elect, that I always had been.

"What possibilities?" Shari demanded, recoiling from me. "Doing card tricks?"

"To name a few," I said. "They feel sure I can operate directly on the molecular chain in genes. This means we can alter heredity to suit ourselves. Next, why not rearrange the DNA molecule in a cancer? If you can change the genes in one cell,

you can change them in another. Knock out the ability of cancerous cells to reproduce their own kind and the cancer disappears. A silly one: Maragon says I can be a one-man catalytic cracking station. Pipe a liquid through a tube within my TK range and I can make an equilibrium reaction run uphill as the stuff flows past me. How about a one-step operation to produce those rare drugs that now take forty-nine separate reactions?"

"This does have a significance for science," she admitted. "The genetic part is right down your alley. And it's not PC, is it?"

"Strictly TK," I told her. "You're the only PC in the family."

"Family?" She turned pink as I

went around the desk after her. "I told you the answer was 'no.'"

"I have inside information," I said, pulling her to me. "One of the PC's up at the chapter house said this was what would happen."

She didn't fight my kiss more than a couple seconds. Then it was a pure case of self-preservation for me. This girl was a tiger. Looks can be awfully deceiving. But she broke away from me.

"Tex!" she gasped. "Stop, honey! Suppose somebody walks in."

"A PC like you never gets *that* kind of surprise," I lied valiantly.

"Am I?" she whispered. "Am I really a PC?"

"That's why you locked the door," I said. "Remember?"

THE END

THE ANALYTICAL LABORATORY

October 1960

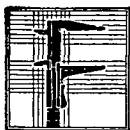
PLACE	STORY	AUTHOR	POINTS
1.	Combat	Mack Reynolds	2.26
2.	Psichopath	Darrell T. Langart	2.50
3.	The Lost Kafoozalum	Pauline Ashwell	2.52
4.	Satellite System	H. B. Fyfe	2.92

The Editor.



THE REFERENCE LIBRARY

FACTS AND FANCIES



OR the past two summers the Pennsylvania State Museum has been excavating a remarkable rock shelter on the Raystown Branch of the Juniata River, deep in the mountains of the central part of the state. What makes the Sheep Rock shelter remarkable is that it has been almost aseptically dry for the last four hundred years,

BY
P. SCHUYLER MILLER

give or take a few decades. This means that bark beds and utensils, arrowshafts, grass and corn-husk bedding, cordage, woven bags, and a host of other material that normally decays has here been completely preserved—right down to human and canine feces that promise to give

some probing biologist a great deal of unique information on the dietary habits of the Susquehannock Indians and their pups.

What makes Sheep Rock pertinent to us is that the imperishable artifacts—chipped and ground stone, potsherds, bone and antler—which normally constitute an archeologist's total evidence from an Indian site of this period, actually turn out to make up only about five per cent of everything the Indians used in their daily life. This five per cent, plus information on how and where it was found, is ordinarily *all* the factual material archeology has on which to reconstruct a former society.

Other sciences also have to reason from similarly meagre evidence.

One of the best examples of how elaborate—and contradictory—structures of reasoning can be based on inadequate information is the confused and vital hassle that has developed over the testing of nuclear weapons. This is as clearly and factually spelled out as I have seen anywhere in "Fallout," a symposium edited by John M. Fowler, assistant professor of physics at Washington University. It is published by Basic Books, Inc. of New York and gives you two hundred thirty-five crammed pages for \$5.50.

"Fallout" is not a slanted treatise either supporting or attacking bomb-testing, although certain of the contributors have positions and opinions which they make clear. The facts as to the magnitude and distribution of the fallout from the early tests, prior

to the French test, are spelled out as they were known at the time the book went to press. The same is true of the biological effects of radiation, both somatic—in direct damage to tissues—and genetic. If I have a basic editorial criticism, it is that fundamental definitions of the units used are not given until Chapter 5, halfway through the book, though a lay reader can always turn to the glossary if he realizes that it is there.

To my taste, the book's best summation comes from Walter R. Guild, assistant professor of biophysics at Yale, at the end of his chapter on the biological effects of radiation:

"The odds against damage are high enough so that I do not feel any special concern for the safety of my family or myself," Professor Guild says. "Yet because the number of people seriously hurt is not zero, I feel I must ask whether the risks are justified. This takes us out of the area of science and into morals and politics in the broadest sense. Speaking now as a layman, I . . . have two thoughts on this matter. The first is that there are many other areas of life in which we as a nation can and will affect more people's lives for better or worse, in pretty much the same broad statistical sense as by fallout. One medium-sized war anywhere in the world in the next fifty years, or the failure to prevent one major famine, would easily do more damage to life than fallout will.

"The second . . . is that fallout is not precisely the major issue with regard to the bomb tests. Behind this

worry lies the much greater fear of nuclear war, and if we are truly concerned about war, then let us by all means use all our wisdom in going after that subject directly."

I have a felling that in this statement, backed up by the facts of the book, Professor Guild is speaking for most of the readers of this magazine and of science fiction in general.

Fancy—extrapolation—plays a much larger part in other books on fallout than it does in this one. Scientific extrapolation from a scanty store of facts is also the key to three other books of more academic importance that have been published in the last several months. They describe what the authors believe we will find on the other worlds of the solar system, how we will get there, and what we will do there. In sheer bulk, astronomy may have more facts at its disposal than archeology, but I would hesitate to say that astronomers have a greater percentage of the potential data about the universe at their disposal than archeologists have about ancient mankind and his societies.

The most solid, impressive, and controversial book of the three is by Alan E. Nourse, no stranger to these pages for his science fiction. It is called "Nine Planets," runs to two hundred ninety-five packed pages with four color plates and eight handsome black-and-white illustrations by Mel Hunter, and costs \$5.95. The publisher is Harper & Brothers.

Taking the planets one by one, the author describes what is known of

conditions there and extrapolates in a way familiar to any science fiction reader. He then goes on to discuss why we will go there and how we will go about setting up an outpost, on the basic assumption that men will eventually go and stay for a while wherever they can. Some of the judgments made are controversial from the conventional astronomers' point of view, a few are dated, and a very few, in my opinion, just don't hold water. Impressive as the fitting together of a vast assemblage of facts has been, it isn't quite thorough enough in some cases. In describing the hot sunward face of Mercury, for example, we get the conventional picture of pools of molten metals—but these metals will also be highly reactive at these temperatures, and in the billions of years since the planet formed will probably have combined into less fusible minerals, especially oxides and sulfides. By the same token, a basic point in determining what gases can escape a planet of a given mass and size is the fact that at high temperatures and under ultraviolet radiation, diatomic molecules that cannot escape may be and eventually will be broken up into single atoms that can and will.

For all such minor points, "Nine Planets" is an excellent and amazingly thorough book, written around the assumption that we will go into space and find things better than they now seem.

Similar in theme but very different in development is "The Exploration of the Solar System" by Felix God-

win—Plenum Press, New York; two hundred pages; \$6.50. Here the illustrations are photographs and diagrams rather than Mel Hunter's beautiful constructions of planetary landscapes, and my own reaction is that you get less book for more money. The principal difference however, is that the author is only nineteen, English born, brought up in American private schools, and now studying physics at the University of London.

The Godwin book is very much like Wernher von Braun's "Mars Project" with its spelling out in minute detail exactly what, in the author's opinion, must be done to reach and colonize the planets. It is the kind of detailed groundwork that a writer like Hal Clement constructs for a story like "Mission of Gravity," and it can easily be attacked by chipping off fragments of detail here and there, even though the main structure is really not damaged. It is really an amazing job for anyone to have undertaken, very dogmatic yet frequently unorthodox, daring yet conservative. I can, as I said, quarrel with many details without seriously affecting the total picture of the exploration of Mars, Venus and the Moon, and the planting of colonies on the two planets.

Both books, by the way, neatly puncture the old science fictitious stereotype of a "belt" of asteroids through which it will be hard to pass. In actuality, that cluttered sector of space is so thinly occupied that to avoid it would be rather like fearing to use the Pennsylvania Turnpike or

the New York Thruway for fear of colliding with bicycles.

With all my admiration for Felix Godwin's *tour de force*, Alan Nourse's book is the one I'd choose to read for enjoyment and intellectual reading.

These two highly competent and exhaustive treatises are by laymen. Lee A. DuBridge, President of California Institute of Technology, has been persuaded that the weight of his name and competence are needed behind a primer of space facts and possibilities. The result, "Introduction to Space"—only ninety-three pages for \$2.50—has been published by Columbia University Press. It is very simple, quite orthodox, and because it is written by a scientist is probably a good starting point for laymen who won't trust another layman's flights of controlled fancy.

Before abandoning this theme of extrapolation on a meager store of facts, I'd like to heartily recommend a paperback on which I have been nibbling for some months. If it has any relevance here, it is probably because the forces and principles discussed must shape the landscapes of other Earth-type planets as they have our own. The book is "The Face of the Earth," by G. H. Drury, an English geographer and student of geomorphology—what makes the landscape look as it does—who draws in a broader range of scientific information, and uses more American examples, than any writer I know of similar background. It's a Pelican Book—No. A-447—and costs \$1.25. You'll

find the writing excellent, the reasoning clear, the facts well marshaled, and only the illustrations rather poor for a Pelican Book.

* * * * *

You may be interested in the results of the "Hugo" awards for the best work of 1959, made at the Pittcon. Best novel of the year was Robert A. Heinlein's "Starship Trooper" and the highlight of the convention was probably the author's unexpected arrival from Colorado, just in time to accept the award. I wish I felt sure that most of the voters had read the full book version and not just the very incomplete serial. Runner-up was Gordon Dickson's "Dorsai" from this magazine, now out in paper covers as "The Genetic General."

Winner and runner-up for best short fiction were both from *Fantasy and Science Fiction*, which also took the "best magazine" award with Astounding—as it still was in 1959—in second place. The Hugo went to Daniel Keyes "Flowers for Algernon," which you've had time to read in anthologies by now; runner-up was Philip Jose Farmer's "The Alley Man," not yet in hard covers in any form.

Rod Serling's really exceptional "Twilight Zone" took the drama Hugo by a five-to-one vote from "The World, the Flesh and the Devil," the only film getting close. "On the Beach," for all the popular acclaim, just didn't go over. Ed Emsh scored as best artist in the field, a victory long in the coming; he and John

Campbell staged an excellent discussion of science-fiction art at the convention. Kelly Freas, now doing very little work in this field, held second place. And, among the fan-published magazines, if you see them at all, "Cry of the Nameless" won from "Fanac."

Next Labor Day it's Seattle. I'll try to keep you informed.

THE THIRD FORCE, by Hugh Matheson. Ives Washburn, Inc., New York. 1960. 248 pp. \$2.95

This is the kind of borderline book that was better done forty years ago, when it was pretty prevalent, by such thriller masters as Edgar Wallace, J. S. Fletcher, and Sax Rohmer.

It's the one about the super-invention—not an all-powerful ray, this time, but a field that nullifies magnetism and therefore stops all electromagnetic mechanisms in their tracks. I don't know what it would do to light: the author is just using words, and his imagining doesn't extend to niceties like that.

Needless to say, the Bad Guys, led by a Super Bad Guy, set out to steal the Nullifier and use it for their own Nefarious Ends—namely, control of the English government, which is equivalent to Mastery of the World. Quite early the hero's beautiful wife is tied up and shoved into a whirling buzz saw, which strips her naked, to the delight of a villain who shortly after gets his back properly broken. There are other rather abundant human sacrifices by both sides. How-

ever, the general impression is of a couple of middle-aged alumni on the fraternity lawn, playing a leisurely game of catch with a softball. First the Bad Guys score, then the Good Guys, then the Bad Guys . . . and so on. The author even tacks on an epilogue to underline his impression that an atomic bomb set off in the middle of England would be a temporary nuisance and a proper warning to the taxpayers.

Fu Manchu's great-grandniece could have wiped out the Levellers bare-handed at the age of six!

THE MYSTERIOUS EARTH, by Lester del Rey. Chilton Company, Philadelphia. 1960. 214 pp. - \$2.95

I started this book—apparently intended for teen-age readers, since all of the publisher's other listed books are of this kind—with high hopes. I became more and more exasperated as I went on, as an excellent theme and good handling were spoiled by careless, wild, and downright inaccurate statements that I could catch, and the suspicion that there were more than I had missed.

Lester del Rey's idea has been a fine one: using the International Geophysical Year and its discoveries as a starting point, to show young people that our own planet is still as full of mystery and scientific adventure as the Moon or Mars. Now, even a geophysicist, who had devoted his life to the study, would be hard put assimilating all the evidence and conflicting views, and any nonspecialist

has to use secondary or tertiary or quaternary sources. Trouble is, the farther you get from the original, the more apt you are to pick up inaccuracies which have been duly parroted down through generations.

The scheme, then, is good; the execution is not quite good enough, especially in a book for young adults and their librarians, who accept what they see in print as gospel. The book opens with a section on the geological mysteries of the Earth itself: mountain building, the magnetic field, the structure of the planet. It goes on to a few of the mysteries of the seas and their life, then back to the land, with its shifting continents and paradoxical ups and downs. Book IV is about living things, including Man and his works, and the final section deals with mysteries of the atmosphere, the climate, and other things we can observe around us.

Some of the complaints I have to register may be of negligible importance—what is often called "nit-picking" but they are there, they suggest that there are others that I didn't detect in a quick reading, and they also suggest that the research for the book wasn't as careful as it should have been. Some, I am sure, are simply careless writing. Mountains are not all granite, for example—the Rockies, among others, are sedimentary, as are the Appalachians and the Himalayas—and maybe the author didn't mean to imply they are, but he does. Whales feed on deep-sea squid, which are decapods, not octopus, which as far as I know are shal-

low-water molluscs. The main sun-spot cycle is eleven years, not seven. Apart from the sphenodon or *tuatara*, the animals of New Zealand are not the oldest in the world; Australia's monotremes have that honor.

And when it comes to Man and his works, where I have done more reading myself, the Miller temperature begins to rise. Hurzeler didn't call *Oreopithecus* a ten-million-year-old man—if he had, the name would have been *-anthropus* and the scientific battle a far bloodier one than it has been—but, as William Howells has put it in his "Mankind in the Making," one of "A primitive group of animals which were *not* monkeys and which were *not* ancestors of apes, but which included the ancestors of man."

The *network* of Inca and pre-Inca roads in South America may have added up to ten thousand miles in all its ramifications, but as for a single road running straight for ten thousand miles, there isn't room enough for it in South America, let alone Peru. The Great Pyramid does not date from "at least six thousand years ago" or 4000 B.C. and it was not built by some contractor named Shufu; Khufu is the Egyptian name—one of them—for the second pharaoh of the Fourth Dynasty, whom the later Greeks called Cheops, and who began his reign somewhere around 2650 B.C. according to current "short" chronologies. Nor is the Great Pyramid to be inundated by the Aswan Dam, which is far up the Nile but does threaten other pyramid

fields of a much later date. Finally, to stop this peevish carping, the quarries where the Easter Island statues were made have been well known almost from the beginning; they are on the island itself, in the slopes of Rano Raraku, an extinct volcano, and not even Thor Heyedahl would put them "miles away across the ocean." These last couple of blunders are plain misinformation that are likely to get some high school student a failing grade if he uses the book for reference.

STRANGE RELATIONS, by Philip Jose Farmer. Ballantine Books, N. Y. No. 391-K. 1960. 190 pp. 35¢
FLESH, by Philip Jose Farmer. Beacon Books, N. Y. No. 277. 1960. 160 pp. 35¢

"Strange Relations" is a collection of five novelettes and short stories, published between 1953 and 1959. It demonstrates the author's talents far better than the newer novel, "Flesh," and at the same time is a show-piece of sexual symbolism and variation. "Mother" and "Daughter," from *Thrilling Wonder*, open the book. They are companion stories about the intelligent molluscs or land-oysters of Baudelaire, females all, whose reproductive cycle is unlike anything on earth except the symbolic phantasmagoria of dreams. In the first and better of the two stories, mama's boy Eddie Fetts, wrecked on Baudelaire with his classically dominant mother, literally retreats into the womb of the monster he names Polyphema and spends the rest of his

life there, fathering her litters in the strange manner developed by her species. "Daughter" is told by one of these offspring, her father's favorite, who took one of his nursery tales to heart and thoroughly quashed one of the most dangerous predators of the planet. This yarn might be taken as the author's tongue-in-check demonstration that a good writer can turn anything into an acceptable SF story—even "The Three Little Pigs."

"Father," the third in the collection, was in *Fantasy & Science Fiction* in 1955. It is by far the most impressive in the book, and the best of the author's stories that I have seen—since his classic "The Lovers" appeared just as I was moving to Pittsburgh, and I never have read it. It is also one of the rare science fiction stories with a religious theme—a world of all-female creatures, except for one male humanoid giant who is in a way creator of them all. Two priests, in the crew of a ship forced down on Abatos, are taught the art of raising the dead. One, Bishop Andre, is to take Father's place while he carries the gift of resurrection to the rest of the galaxy. But the more worldly Father Carmody begins to probe a little deeper, and to uncover disquieting things.

"Son," from a 1954 *Argosy*, where it was called "Queen of the Deep," is a time-marking short story about a man swallowed by a Russian submarine that is run by an electronic brain. He, of course, finds a way to outwit the machine and escape. "My Sister's Brother" from *Satellite* of 1959—it

was "The Strange Birth" there—comes close to the quality of "Father." A man on Mars finds an underground, or at least encased society of strange creatures, with a bizarre sexual cycle vaguely suggesting that of the social insects, and with these Martians a strange, seemingly sexless womanoid creature of entirely different type. The story line is rather inconsequential; what counts here is the ingenuity with which the biology of these aliens has been worked out. Again, for the Freudian, sexual symbolism is poured in with a lavish hand to flavor the outlandish stew.

The symbolism is there, too, in "Flesh," but in line with the publisher's policies, just about everything in the book has an overt sexual motive or meaning. A starship which has left Earth about 2100 A.D. returns after eight centuries to find the planet a parched cinder, with a few oases of human civilization on a more or less pastoral level. This culture of the thirtieth century is based on a fertility cult that incorporates just about everything in "The Golden Bough," with embellishments from the author's fertile imagination. Peter Stagg, giant red-headed captain of the returned ship, promptly has antlers grafted on his skull, is adopted into the Elk fraternity, and as the year's "Sunhero" is launched on a six months' career of servicing every eligible "mascot" or virgin in the Deecee kingdom. His triumphal northward march will bring him to Albany at the summer solstice, where the hideous Mother of Pigs will cas-

trate and slaughter him, sending the Sun back into darkness from which a new Sunhero will rescue it at the winter solstice.

For the surface reader in search of such entertainment, this is simply the story of one prolonged orgy—a dream fantasy made real—with colorful and plausible detail, and with a small amount of melodrama thrown in, as Stagg falls in love with a captured mascot from the pseudo-Catholic Casey kingdom of Boston, is taken prisoner by the Pants-Elf homosexuals of Pennsylvania—a foul libel!—and is pursued by the hunting pigs of Mother Alba. Meanwhile, in subplots, Stagg's fellow spacemen try to fit themselves into the sex-centered society. Those who dig psychological symbolism can carry things to still another level, and delight in what the other says symbolically that he can't get by with in simple Anglo-Saxon. Finally, since Farmer is a serious writer, he is undoubtedly saying something about the psychological nature of man and human society, but quite without the finesse and suave subtlety of "Father" and "My Sister's Brother." After all, that's not what Beacon pays for.

OUT OF BOUNDS, by Judith Merril. Pyramid Books No. G-499. 1960. 160 pp. 35¢

THE TOMORROW PEOPLE, by Judith Merril. Pyramid Books No. G-502. 1960. 192 pp. 35¢

Second-guessing, with a deadline upon me, I wish I had time to go

back and do a sermon on these two books and the two by Philip Jose Farmer. For it seems to me that Judith Merril, in some of these stories, has demonstrated the proper place of sex in science fiction far more clearly than a written-to-order "sexhibition" such as Farmer's "Flesh" will ever do.

"Out of Bounds" opens with Miss Merril's first story, the unforgettable "That Only a Mother," and adds six other superior short stories and novelles, dating down to 1959. These are good science fiction and they are good stories, about real people. Since they are far better than the average "idea as hero" stories, they pretty well dispose of Kingsley Amis' argument that there is no place for characterization in science fiction. The point of "Only a Mother" is the mother's personality and what has happened to it, and none of the other stories would succeed if its people were not real.

But back to sex: the second story, "Peeping Tom," is about a GI who uses his telepathic ability to find an interminable succession of willing and eager bed-mates, only to learn in the end how much he really failed to learn about his power. "The Lady Was a Tramp" stands close to "Only a Mother" in its portraits of the members of the crew of a space freighter, and the psychological changes that take place in the attitudes of a new crewman toward both the men of the crew and its one woman. This is an even better example of Theodore Sturgeon's favorite theme of "empa-

thy" than Sturgeon himself has given us.

Love of another kind, on an essentially religious level, is the theme of "Whoever You Are." Here members of an alien race have broken through Man's guards and must be destroyed because we cannot tolerate universal love. "Connection Completed" is a short, more obvious story of the courtship of two telepaths, made more than ordinary by the handling. "Dead Center," which won a place in one of Martha Foley's annual "best" short story collections—"Main-line" type, remember—is a compassionate psychological story of a spaceman, his wife, and his child. I think "The Lady Was a Tramp" is a better story, but the gadgets probably scared off the critics whereas a simple rocket to the Moon was not too daring. A fantasy, "Death Cannot With-er"—a ghost story, in fact—closes the book.

"The Tomorrow People" is an in-sipid title for a superior original novel, not up to its author's "Shadow on the Hearth" or some of the short stories we've just discussed, but an answer to the complaint I heard a few weeks ago at a scientific meeting: that there are no "real" science fiction novels. By this, again, the complainer meant that the typical SF "novel" fits Amis' "idea as hero" or even "gimmick as hero" category. "The Tomorrow People," on the other hand, is about people who are having a hard time coping with the pressures of life in 1977. The gimmick is there, but it is a bonus.

In 1977 there are Russian and American research centers on the Moon, and Johnny Wendt is the only man to return from Mars. He won't or can't say what happened there to his partner on the voyage or what they learned about the previous Russian ship that failed to return. He won't go back into space, but lives with a dancer in affectionate non-wedlock, in the rural environs of New York. Meanwhile the scientists on the Moon are making some remarkable discoveries about the Martian bacteria and other life forms that he has brought back.

There are several intricately interwoven sub-plots in the book, whirling like a maypole pattern around the central relationship of Johnny and Lisa Trovi. A psychiatrist friend, Phil Kutler, feels that he has come close to breaking through Johnny's mental barriers, but he is warned off and goes to the Moon to do what he can to make men and women mentally fit for space. Dr. Peter Christensen, chief of "Dollars Dome," is struggling to keep his project alive and to prevent mankind from backing away from the planets and the stars. Assorted politicians are intent on getting the Dome's money for their own projects, or getting control of it themselves. Sex is important to the relationships of these people—in some cases all-important—but it is the kind that grows naturally out of the fact that tomorrow people, like today people, will be bisexual mammals. It is not a superficial decoration to boost sales, nor an

embellishment of latrine graffiti.

In his introduction to "Out of Bounds," Theodore Sturgeon ticks off some of the criteria of a Writer: he—or she, in this case—has something to say, has empathy for people and things, has humility, has an understanding and respect for craftsmanship. The two books prove his case marvelously well.

REPRINT ROUNDUP

NINE TOMORROWS, by Isaac Asimov. Bantam Books No. A-2121. 198 pp. 35¢

The complete 1959 collection: one of the better buys.

THE BEST FROM FANTASY & SCIENCE FICTION, edited by Anthony Boucher. Ace Books No. D-455. 255 pp. 35¢

The fourth—1955—*FS&SF* anthology: sixteen mixed fantasy and science fiction offerings by fifteen Big Names and one Dark Horse.

THE INCOMPLETE ENCHANTER, by L. Sprague de Camp & Fletcher Pratt. Pyramid Books No. G-530. 192 pp. 35¢

Many veterans consider this *the* pinnacle of *Unknown Worlds'* unique ramble along the borderlines of fantasy. Harold Shea's misadventures in the warped worlds of Norse mythology and Spenser's "Faerie Queene," girded by symbolic logic, simply have no equal anywhere.

THE MATING CRY, by A. E. van Vogt. Beacon Books No. 298. 160 pp. 35¢

This is a sexed-up version of van Vogt's "The House That Stood Still" and one of the so-called "Galaxy Prize Science Fiction Novels."

THE SPACE NOVELS OF JULES VERNE. Dover Books No. T-634. 462 pp. \$1.75

This typically well printed Dover edition contains the two parts of Verne's wildest story—the serial that launched *Amazing Stories* back in April 1926. "To the Sun?" and "Off on a Comet" are usually combined as "Hector Servadac," named after its hero. A comet neatly chips off a chunk of North Africa and carries it off on a tour of the solar system, finally returning it whence it came.

BEST STORIES OF H. G. WELLS, Ballantine Books No. S-414K. 320 pp. 75¢

A fat little volume that contains sixteen of Wells' best shorter work, including "The Man Who Could Work Miracles" and "A Story of the Days to Come." The lesser-known tales include "The Argonauts of the Air," "The Land Ironclads," and "Mr. Skelmersdale in Fairyland."

THE INVISIBLE MAN, by H. G. Wells. Chariot Books No. 128. 195 pp. 50¢

I don't think this classic novel is old enough to have been pirated, so I don't think it has been sexed up, in spite of the cover illustration. The publisher gives no credits and no address, however, so you may have to just chance on it.

BRASS TACKS



Dear Mr. Campbell:

The rather peculiar reason for my writing this letter is to inform you of the existence of me and my family. My husband and I have been fans for more than ten years, we've built the Hieronymus machine and tested it—with inconclusive results—sent for the patented device of Mr. Dean, and generally followed your ideas until you've become a very live and real part of our lives. Now I have a theory that necessitates your becoming very aware of us.

Several years ago you wrote an editorial concerned with the odds involved in a possible nuclear war. You compared the stockpiling of nuclear weapons with two boys stockpiling snowballs, each one waiting for the other to make the first move. You felt that it was inevitable that

one of them would. I agreed and started to make preparations for the survival of my family. At the same time I began to speculate on just what preparations I would be making if I had an unlimited amount of money to spend, and/or a group of friends who also faced the possibility squarely. I decided that I would get together with these people and begin to make ready a stronghold where we would survive together along with as much of our technology as we could preserve. I speculated that we would tunnel into some geologically sturdy mountain range, perhaps one that already contained natural caves that could be artificially extended, stock them with equipment for hydroponic gardening, generators, and everything needed for the complete sustaining of as many people as the

place would hold. I'd begin contacting representatives of each of the sciences, asking them to join the group. The wealthy members would purchase the paraphernalia needed; the technicians would set it up and install the machinery.

And I thought that those people who could or would leave their normal occupations would move in and start this self-contained economy operating. The rest would depend on members who held high government posts to warn them weeks or months in advance that the time was drawing close. They and their families would begin moving in, withdrawing from their jobs as unobtrusively as possible.

Then I realized, Mr. Campbell, that surely if I could conceive of this possibility, certainly others would; those who are more foresighted, more aggressive, or in better position to locate others who felt the same way. And during the past few years, it has begun to seem logical that some such project is in operation.

And finally, I have speculated on the people most likely to be participants in such a plan. They would need to be, primarily, people who could envision the future and were brave enough to have faith in their own extrapolating. You can see where that led me! Those who read or contribute in some way to the field of science fiction were the most obvious candidates. Of the editors and authors whose names I know, you are the one with whose qualities I am most familiar. I know you have every

characteristic my hypothetical person would possess, and in addition, I think you probably would be not only a member of this group, but one of the instigators!

I don't mind if you laugh at this point. Sometimes in the daylight my theory seems so utterly ridiculous, I burst out laughing myself. But my husband and I have sat on our rooftop in the chilly dawn of the Nevada desert and watched the pulsing glow of a fire-ball during the test shots at the flats, sixty-five miles away. The darkness was lit up as though it were noon and when the shock wave rumbled through the earth I felt the house shudder. Facing that monster unprotected is too high a price to pay for the preservation of my dignity! I'd rather be an undignified survivor.

After acquiring the food, water and other essentials my family would need to survive in a shelter for a week, I began to wonder if a week would really be adequate. All the civil defense information is based on the fallout from only one city. What about fallout from other cities? I studied some maps and made the cheerful discovery that on days we didn't get fallout from Los Angeles, San Francisco took over, and when the wind made a third shift, we had Phoenix to contend with. But there is still another factor. All these estimates are based on radiation within the United States. No one mentioned what the arrival of Russia's contribution will do to both count and duration of fallout after we have

"clobbered" her. It began to look as though we might be better prepared if we could stay underground for a year. Unfortunately, we can't. The cost is prohibitive.

This brings me, at last, to the point. If all these "if's" should come to pass, and IF my theory is correct, would you kindly come and dig us out?—Jeanette Hayes, Las Vegas, Nevada.

When an organism is attacked it can, in defense, (1) fight, (2) flee, (3) hide, (4) die.

#1 is, in this case, the cause of the trouble, so that's out.

#4 we're seeking to avoid.

#3 turns out to be impractical.

That leaves #2. One reason I want that space drive real fast!

Dear JWC:

I was surprised and pleased to see Mr. Richardson's article in the August issue. Immediately upon reading the title, I saw the Venus-with-the-hole-in-the-middle cover of the issue that had carried his very imaginative "The Aphrodite Project," which I remember very well and have often thought about in the intervening years—along with that disquieting little yarn of his about the astronomer watching Sol go nova. I recently recalled this latter one on seeing a news release that the sun had exchanged its north and south magnetic poles—at least that's the way the newspaper had it—and I have been hoping that ASF would fill us in.

In the present article, Mr. Richardson comments at length on the problem of determining period of rotation, latitude, et cetera, from the surface of Venus, underneath the cloud cover, and refers the problem to the readership, pleading lack of ingenuity. The imaginative author of "The Aphrodite Project" is being modest—I'll wager that he at least suspects his problem to involve one of those curious, deceptively simple solutions that hide themselves behind their own obviousness, choosing to present themselves to relatively uncomplicated people:

If I just say the word, *gyroscope* . . . and if that isn't enough, if I suggest that as long as these things may be determined by aiming a tube at a point in space, then the tube might just as well be full of gyroscope as telescope . . .

Now if you want to have some fun, do what I did: laying this letter aside, draw a circle around a quarter on a piece of paper, get out a ruler and a protractor, and start plotting. It is astonishing how a nice little surveying system will almost spontaneously put itself on paper:

At the equator, a gyroscope oriented so that it is pointing straight up—one end of its axis pointing straight up—will, one half sidereal day later, be pointing straight down, later to be pointing straight up again at the completion of the sidereal day. At a latitude of twenty-two and one half degrees, a gyroscope initially oriented so as to point straight up would, at the completion of one

half sidereal day, be pointing not straight down, but downward at an angle of forty-five degrees from the vertical. At a latitude of forty-five degrees, the half-day mark would find the gyroscope indicating an angle of ninety degrees from the vertical, parallel to the ground. And so on.

The half-day mark would, of course, occur at the instant that the pointer had reached its maximum declination, at which time it would be pointing directly at the pole, so that the observer knows which hemisphere he is in—and providing a handy compass for the job of laying down Venus' first meridian.

The determination of longitude will be a bit more exercising than the case for latitude, but can be undertaken as soon as a base meridian and base time—the Venus-side equivalents of the Greenwich meridian and GMT—have been set up. The surveyor, having set his gyroscope and taken note of the time, transports his instrument from the base meridian to the unknown longitude; the discrepancy between the "time" as indicated by his instrument—the gyroscope pointer inscribes one complete circle per day, like a twenty-four-hour clock—and the time indicated by his chronometer then reveals his longitude. For example, if he had set the instrument to indicate *noon* at noon at the base meridian, and then, transported to the unknown location, it indicates *noon* when the chronometer registers midnight, then he is obviously at a longitude of one hundred eighty degrees. Thus,

each hour of discrepancy corresponds to exactly fifteen degrees longitude; assuming the rotation of Venus to be retrograde, each hour by which the instrument is "slow" with respect to the chronometer corresponds to a longitude of fifteen degrees east, and vice versa.

As for determining the time of day at the base meridian—the meridian running through the first successful landing party's *base*, naturally—the gyroscope will require an assist from an auxiliary device: Some time in advance of estimated noon, the auxiliary device transports the instrument above the cloud layer and the gyroscope is oriented so as to point directly at the sun. The auxiliary device then returns the instrument to the base meridian, and the ascension of the pointer is observed. At the instant of maximum ascension, the sun is at the meridian. BMT—Base Mean Time—can then quickly be calculated since the planet's position in its orbit, and hence the day of the year, will be known from astronomical observation.

Incidentally, this operation also reveals the planet's inclination, in case anybody wants to know.

Inasmuch as there may be a complete absence of anything resembling day and night, it may be considered unnecessary to organize Venus into time zones on Standard Time, and the entire planet may feasibly operate on BMT, or even GMT, for that matter—of course, eventually some goof is sure to get the bright idea of setting clocks ahead or back an hour or two

for part of the year, and all the small minds will rally round him.

In connection with the speculations and predictions as to the actual chemical makeup of Venus, I wish to make a prediction of my own: I predict that whatever the answers prove to be, it will be learned that there had been people here on Earth who had known it all along, having applied their psi machines to the job.

Come, come, stop holding out on us.—Phil Phillips, Iowa City, Iowa.

There is the Finnagle Law that "No matter what happens, it will turn out that someone knew it all along," however!

Dear Mr. Campbell:

Your editorial in the June issue of "Analog" implies that a superior civilization would have no scientific reason for putting out the effort to contact a young society such as Earth's. I agree. But there are other reasons for a meeting of minds.

In any high culture there will be the search for new artistic sensations, particularly those provided by primitive groups where the emotions are more free or by alien societies with a different view of the universe. Considering the lengths to which people go and the prices people pay for the arts already, this drive, a form of the curiosity which also led us to science, may even be strong enough to push space travel. And, after all, what is more easily transportable than ideas,

such as those which go into the music, art, literature and architecture which really constitute a civilization. Perhaps our TV is being tapped now. That must be the reason there's been no further contact.—D. Morrison Smith, 301 First Avenue, Ottawa 1, Ontario, Canada.

They are in contact with us—it's just that we are not in contact with them!

Dear Mr. Campbell:

Your articles on the Dean Mechanism remind me of the efforts of H. C. Mulberger, whom I worked for in 1952-53 to introduce his sea water purification apparatus to the United States Department of Commerce.

This gadget worked on known principles, and is a straight-forward electronic device, which any idiot with a technical school education can operate and maintain. He presented the device to the Department of Commerce in the form of a small-scale model, working, at their request.

The outcome of the interview-demonstration was that he asked for \$5,000 to build a larger-scale, continuous-flow model. They refused, and the model was not built, on the grounds that the minimum that they could allocate was \$50,000 on any one project, and Hank told them that he could use only \$5,000.

The second gadget was a radiation shield, which will deflect the radiation impinging on it by a constant 50%. This was laughed at at a dem-

onstration by an expert from the Atomic Energy Commission, who watched it work and then categorically stated that it was impossible.

The theory for the above is known by many persons in a hazy nonmathematical way, and by a lot of professional scientists in fairly heavy math. So far as I know, it has never been applied other than as above.

Referring to "Atlas Shrugged," have you noticed where our top brains are working now? A friend of mine who worked on three-dimensional radar presentation systems is currently employed running a grocery store in a Texas town of about two hundred fifty people. Another, a chemist who specialized in making odd organics to order for a number of local labs is touring the country on the bum. This all happened before "Atlas" was published. More top people are quitting now, slowly as yet, but every little bit helps. —John M. Hansen, Chicago, Illinois.

Anything that costs only five kilobucks isn't worth wasting government time, obviously.

Dear Mr. Campbell:

This business about the Dean machine is fabulous. I hope it really works and makes monkeys' uncles out of all the bright young engineers who claim such a thing is impossible.

Entirely aside from the Dean machine, however, I wonder if Newton's reaction law wasn't a little bit

fishy all along. It implies that an action is exactly equal to a reaction; but in the real world it is rarely if ever true that any quantity exactly equals any other quantity.

For instance, suppose we're out in space somewhere in an air-filled rocketship or other black box. I have a gun. I back up against one wall of the ship and fire at the opposite wall.

Now, the reaction against the gun is transmitted through my body to the rear wall of the ship and starts it accelerating backward. Newton, of course, tells us that as soon as the bullet hits the opposite wall, action and reaction are cancelled; and acceleration of the ship is halted.

Suppose, however, that the bullet travels so fast that it dissipates most of its energy in heat, caused by air friction, and melts before it ever reaches the opposite wall.

Admittedly, a certain amount of action is transmitted to the opposite wall through the pressure of the bullet against the air. But most of the bullet's energy is dissipated in heat. Heat doesn't exert much mechanical action; and what action it does exert is omnidirectional anyhow.

Ergo, action without reaction. Did I goof somewhere in my reasoning, or have I disproved Newton's law? —Dale L. Hileman, Iwakuni, Japan

Sorry—you goofed! The bullet got hot from bumping all those air molecules out of its way—and they pushed that other wall! Dean may have cracked the third law—but it isn't easy to do!

(Continued from page 7)

mounted on large, massive, and complex installations; two men, riding seats slung on the mount, kept the camera accurately aligned by turning hand-cranks, while watching through spotting telescopes. One turned cranks that controlled the vertical altitude movement; the other controlled azimuth.

The story has it that, after one shoot, at one such camera-mount, things had been quite peaceful after an early flurry of activity. "No change of altitude," said A to his teammate. "No change of azimuth," replied his teammate . . . and then, "Hey! Let's get the hell outa here . . . fast!"

Of course, the velocity attainable by human legs wouldn't do much good, but the intention was valid. The missile definitely was *not* suspended in midair; then if neither altitude nor azimuth showed any change, it must necessarily be moving on a line either straight toward, or straight away from the point of observation.

Any star moving either directly toward us, or directly away, will show zero proper motion, no matter how close it is.

The star Wolf 359 has an apparent magnitude of 13.5, an absolute magnitude of 16.6, and is the fifth nearest star, at eight light-years—0.6 light-years nearer than Sirius. Its luminosity is 0.00023 that of the Sun. It has a proper motion of 4.84 seconds of arc per year, against Barnard's of 10.3 seconds. (And it happens, it's the

only one of the six nearest stars that is *not* a double or triple star!)

Now let's suppose that there is another star at only two light-years distance. It's a white dwarf, of course, of absolute magnitude about 18, and hence of visual magnitude about like Wolf 359. But unlike Wolf 359 it happens to be traveling in such a direction that it's headed straight for the Sun—or straight away from it.

Now the total number of stars to the sixth magnitude is about 3000. The tenth magnitude brings in 165,000 stars—which is what would start giving Chesty Hero such trouble. But to the fourteenth magnitude—visible in a good 6" telescope in the mountains—we find 6,500,000 stars. Our close-in star—we'll call it Hypotheticus—is one of the 6,500,000 stars recorded by a 6" amateur's telescope—and is, of course, on plates taken by Palomar's 200"er, their 48" Schmidt camera, and the pictures shot at observatories all over the world. Most sky surveys are done with Schmidt camera, which reach only to the seventeenth magnitude or so, and therefore pick up only 100,000,000 or so stars.

So astronomers have recorded Hypotheticus' image hundreds of times—along with the other 5,000,000 or so fourteenth magnitude stars. Having one or two other projects on hand, they haven't studied their plates and compared them carefully to determine the parallax movements of each of the 5,000,000 stars of the fourteenth magnitude, nor even, all the 1,100,000 or so of the twelfth

magnitude. Those dim ones like Wolf 359 and Barnard's Star that were measured for parallax, were picked out because of large proper motion. It's easy to spot the Echo satellite, despite all the hundreds of stars in the sky, because Echo shows a very large proper motion—it moves several degrees across the sky in the course of one minute.

But Hypotheticus, we've stated, has zero proper motion; without taking time to make careful parallax measurements, there's no way of telling whether Hypotheticus is a dwarf nearby, or a super-giant halfway across the galaxy. Some six-color photometry would give the answer as to giant or dwarf . . . but that's not any simple, thirty-second task either.

Now the spectrum classifications run, in decreasing order of temperature, O, B, A, F, G, K, M. (Most readily remembered by the old mnemonic "Oh, Be a fine Girl! Kiss Me!") One of the O, B, or A giants blasts out a flood of radiation so violent that, it's been computed, they probably ionize every atom of hydrogen in the space around them for about fifty light-years!

Rigel, that manages to be seventh brightest of Earth's stars, from 550 or so light-years away, is a Class B. Deneb, which manages to be among the twenty brightest from 400 light-years distance, is a Class A giant.

Sirius A, the one we see in the night sky, is a Class A star too—but it's only about thirty times as brilliant as Sol, as against 4,800 sun-power for

Deneb. (And 21,000 for the Class B giant Rigel.) Sirius A has a companion; its apparent magnitude is 7.1, however, and can be seen only in highly competent telescopes. With Sirius A blazing away, little Sirius B is hard to see. Yet Sirius B is also a Class A star! So we have three Class A blue-white suns; Deneb, 21,000 sun-power; Sirius, 30 sun-power; and Sirius B, 0.01 sun-power.

Alpha Centaurus is also a double; A is a Class G, as is our sun, while B is a Class K. They're 1.3 and .36 sun-power respectively.

Now aside from Sirius A and B, and Alpha Centaurus A, all the stars within ten light-years of Sol are either Class M or K—orange to red stars, cool stars. At 10.7 light-years, there's Procyon A and B. Procyon A is a Class F star, somewhat bluer and hotter than Sol, and a seven sun-power star. Procyon B's spectral type can't be determined—it's too weak, and too close to blazing Procyon.

Going out from there, every star out to 15.6 light-years is a class M or K—a list of twenty stars!—with the single exception of Van Maanen's star at 13.2 light-years, which is a Class F white dwarf of 0.00019 sun-power.

Then, at 15.7 light-years, we find a slightly smaller version of Sirius A—a Class A, ten-sun-power star called Altair—it's a familiar first-magnitude star from here. Then going farther out, we run into a Sollike Class G of .36 sun-power that shows as a fourth magnitude star in Eridani. It's a triple star; B being a Class B

dwarf, 0.0048 sun-power, C gets back to the run-of-the-mill Class M, and 0.0012 sun-power. Then the list starts in again with the M—K—M—M—as before.

In the list of the thirty-nine stars—counting multiples as one—within sixteen light-years of earth—half a parsec—there are only four equal to or brighter than Sol, and seven more that are more than 0.1 as bright as Sol.

Space, it would seem, is "lousy wit' stars" . . . but most of them are a darned sight smaller than Sol.

But because a star belongs to Class M or K doesn't mean a thing so far as intrinsic brightness goes. Antares is a 1,900 sun-power Class M that rates first magnitude even at 250 light-years, and Betelgeuse is another cool, red M star—with 40,000 sun-power 300 light-years away! "Groombridge 34 A", at 11.7 light-years, is also Class M1, like Betelegeuse, and delivers 0.0076 sun-power.

So just try guessing whether a particular faint star is near or distant! Betelgeuse, moved halfway across the galaxy, would still be as bright as some of our nearest stars. Given five million star-images to study . . . how could Hypotheticus ever be spotted? If, as postulated, Hypotheticus is traveling directly along the line of sight, its image would lie somewhere in the vicinity of Vega—the direction in which the Sun is traveling—or 180° away, and the antapex. That would reduce the five million considerably. But it'd still be a number decidedly unattractive.

How does this affect Chesty Hero's predicament?

It means he's quite apt to be near enough one of those little miniature suns that are really very thickly sown through space, to have it lousing up his constellation maps.

Furthermore, while it's true that constellations are generally pretty distant . . . that's not quite so true as we may assume, and they're by no means true units. Five of the stars of the Big Dipper are members of the same star-stream, and are moving together; the others are totally unrelated. Many of the brighter stars in our night sky belong to a star-stream that Sol and his planets just happen to be wandering through; Sirius, is one of the stream, but Sol isn't.

Now of the twenty brightest stars in the night sky, not one is as dim as our Sun; nearly all of them are from twenty to one thousand times as brilliant.

But *only two* stars within half a parsec are ten or more times as brilliant as Sol.

There is no constellation in the sky that is made up in major part of first-magnitude stars. Rigel and Betelegeuse are both in Orion; both Alpha and Beta Centaurus are first-magnitude stars—but Beta Centaurus—who ever heard of it?—is a 1,400 sun-power Class B giant 190 light-years away. Move twenty light-years, and Alpha Centaurus drops to a fourth magnitude star—while Beta remains practically unaffected by a mere twenty light-years.

Meanwhile, of course, Sol has gone

from magnitude -26 way down to fourth magnitude.

Constellations are patterns of stars all lying within a relatively narrow angular area, *and having a relatively small range of brightness*. The stars that form the major part of the patterns are first, second, third, and fourth magnitudes—and most constellations are made up of second, third and fourth magnitude stars, which means a range of plus or minus only 2.5 times!

To have constellations remain recognizable, it is necessary that the pattern of shape not be too badly altered, but also that *the pattern of brightness* must remain recognizable.

I've started doing some star-photography myself—with some extremely interesting results. What can be accomplished in the way of star photography with a standard, home-snap-shooter type camera of the modern type, and *no special equipment whatsoever*, is apt to give you a major surprise.

The interesting thing is this: a standard Nikon 35mm camera, with the standard F1.4 58 mm lens—or the standard F2.0 for that matter—is just perfect for taking pictures of the major constellations. The Earth turns through fifteen seconds of arc, for each second of time; this blurs star images if you don't have an equatorial mount and a clock drive to counteract it of course. BUT . . . 150 seconds of arc is just about the limit of resolution of the naked eye anyway, so a ten-second exposure on

STARBLINDED



MOVING? GOING TO HAVE A NEW ADDRESS?

We can't send your regular copies along if you don't warn us ahead of time. If you're going to move, let us know six weeks in advance. Be sure to tell us: your name, your old street address, city, zone, and state, AND your new street address, city, zone, and state.

Write Subscription Dept.

ANALOG

P.O. BOX 5000

Greenwich, Connecticut

an ordinary tripod gives you at least as sharp a view as you get at night yourself. (Actually, with a five second or even two second exposure, the Big Dipper will record, and a fifteen diameter enlargement, made in a standard darkroom enlarger, will not only show the separation of Alcor and Mizar in the handle of the dipper—but will show, by the blurred-extension of the image of Mizar that Mizar is a telescopic double.)

I've taken a few shots; one of Casseopia, one of the most familiar constellations, is a nice one to try on Chesty Hero before he takes off on that experimental trip. It's easy to eliminate one or two star images, in making the enlargement—just one or two. Of course a few grains of dust on the negative will very readily add a few extras.

I have yet to find anyone who could recognize the constellation, with those very, very minor changes . . . and the disorientation produced by the fact that you can't cross-check to see what part of the sky it is.

My own hunch is that that experimental FTL ship never did get back to Earth, and the whole project had to be abandoned as a complete failure. Neither Chesty Hero, nor the four other volunteers who followed him, were ever able to find any constellation.

And they'd neglected to teach the poor guys how to do galactic navigation by using constellations of external galaxies, detected by making long-exposure plates and calibrating them. Only the exterior galaxies would not

show appreciable change in either positional pattern, *nor in brightness pattern.*

Of course, there is then the slight difficulty that, since they don't show pattern or brightness changes—they don't tell you where you are in the galaxy, either!

But they will do something of crucial importance for you; they'll allow you to determine which end is up.

Even twenty light-years won't change beyond recognition the pattern of positions and brightness of Rigel, 21,000 sun-power; Betelgeuse, 40,000 sun-power; Deneb, 4,800; Canopus, 1,900; Antares, 1,900; and that never-even-mentioned Beta Cenatursus of 1,400 sun-power. But it will change their position-pattern enough so that direction and distance can be computed.

Constellations aren't recognized by position-angles alone; the brightness-pattern is equally critical. And a twenty-light-year hop moves the exceptionally-bright stars of Sol's general range through the entire range of constellation-brightness! The vast majority of stars, in any region of space, appear to be 0.01 sun-power or less—and the super-giants of 1,000 or more sun-power are almost non-existent.

One thing's for sure; if Chesty depends on glancing out the viewports and recognizing the constellations to get home . . . he'd better have fuel enough for many, many, hops, food enough for a lifetime, and a large stock of spare parts.

The Editor.

An introduction to the joy of mathematics

THE SCIENTIFIC AMERICAN BOOK OF MATHEMATICAL PUZZLES & DIVERSIONS

YOU are invited to play with the awesome toys of modern mathematics — and learn while you play — in Martin Gardner's first **Scientific American Book of Mathematical Puzzles & Diversions**.

It's an instant success — out two weeks as we write, already in its 3rd printing and 40th thousand, and winning the warmest of praise. Here are the first tributes:

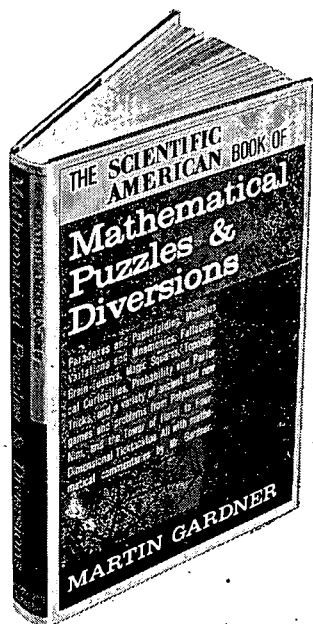
★ **VANNEVAR BUSH** writes: "A grand book! Enjoyed it hugely. Gardner accomplishes the seemingly impossible. He has produced a book which will be enjoyed by laymen and which will make a good mathematician scratch his brow with perplexity."

★ **CLIFTON FADIMAN**: "With this delightful collection Mr. Gardner takes his place among the classic masters in the field. His book poses a grave problem for the lover of mathematical recreations. It will seduce him for hours, for days, for weeks, from the duller business of practical life. Enter these enchanted mazes you who dare!"

What's in the book? A superb selection of mathematical puzzles and entertainments from Four Dimensional Ticktacktoe and The Mirror That Does Not Reverse Images to the latest twist on the Moebius Strip. All have been chosen for their mathematical interest.

Martin Gardner's writings appear regularly in *Scientific American* — the magazine of which the *Times* has said "its roster of contributors reads like a Who's Who of contemporary science." And his monthly servings of mathematical games is one of that brilliant periodical's most looked-forward-to features. This is the first collection of them, lavishly illustrated and expanded with new material.

Result: a perfect gift for (1) yourself (2) numberless (literally) laymen who will find here their first insights into the mysteries of creative mathematics,



(3) your favorite atomic physicist and (4) the bright adolescent who likes puzzles and may, through them, be lured into the world of mathematics. \$3.50.

SEND NO MONEY — MAIL THE COUPON TODAY

SIMON AND SCHUSTER, INC., Dept. P
630 Fifth Avenue, New York 20, N. Y.

Please send me for free examination _____ copies of Martin Gardner's **SCIENTIFIC AMERICAN BOOK OF MATHEMATICAL PUZZLES & DIVERSIONS**. If not delighted I'll return it in 10 days. Otherwise you bill me \$3.50 per copy plus postage.

Name _____
(Please Print)

Address _____

City _____ Zone _____ State _____

☐ Check here if enclosing remittance. This way publishers pay postage. Same return-for-refund guarantee applies, of course.

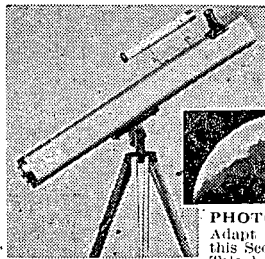


AMAZING SCIENCE BUYS

for FUN, STUDY or PROFIT



EXCELLENT
for
XMAS
GIFTS!



PHOTOGRAPHERS!
Adapt your camera to this Scope for excellent
"telescope" shots and fasci-
nating photos of moon

... SEE THE STARS, MOON, PLANETS CLOSE UP 3" Astronomical Reflecting Telescope

Assembled and ready to use! 60- to 180-Power
An Unusual Buy—Famous Mt. Palomar Type

Assembled — Ready to use! You'll see the Rings of Saturn, the fascinating planet Mars, huge craters on the Moon, Star Clusters, Moons of Jupiter, in detail. Galilei's Teles-
copic mount with lock on both axes. Aluminized and over-
coated 3" diameter high-speed f/10 mirror. Telescope
comes equipped with a 60X eyepiece and a mounted
Barlow Lens, giving you 60- to 180-power. An Optical
Finder Telescope, always so essential is also included.
Sturdy, hardwood portable tripod, FREE with Scope.
Valuable STAR CHART plus 272-page "HANDBOOK
OF HEAVENS" plus "HOW TO USE YOUR TELE-
SCOPE" BOOK.

Stock No. 85,050-A \$29.95 Postpaid

4 1/4" Reflecting Telescope — up to 255 Power, al-
minal pedestal mount.
Stock No. 85,105-.....

\$79.50 F.O.B., Barrington, N. J.

CRYSTAL GROWING KITS

Grow breath-taking display of large crystals with this
set.

Stock No. 70,336-A \$9.50 Postpaid
(See article in Oct. 1960 issue of *Analog Science Fact & Fiction*) "Self-Repairing Rebuilds"

BEAUTIFUL CIRCULAR DIFFRACTION GRATING



As a scientific phenomenon, this new
kind of jewelry is capturing atten-
tion everywhere. Shimmering rain-
bows of gem-like color in jewelry of
exquisite beauty — made with CIRCULAR DIFFRACTION GRATING REPLICA. Just as a prism
breaks up light into its full range of individual colors,
so does the DIFFRACTION GRATING.

Stock No. 30,349-A Earrings \$2.75 Ppd.
Stock No. 30,350-A Cuff Links \$2.75 Ppd.
Stock No. 30,372-A Pendant \$2.75 Ppd.
Stock No. 30,390-A Tie-Clasp \$2.75 Ppd.

LIFE-SIZE HUMAN SKULL



Skull is anatomically correct — made
of natural bone color, bone hard, life-
time plastic. Parts snap together —
take apart. Spring action lower jaw
removable skull cap for examination
of skull cavity, nasal passages, etc.
Stand and Inspection and Anatomy
Chart included.

Stock No. 70,204-A \$4.95 Postpaid

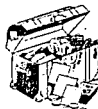
TERRIFIC BUY! AMERICAN MADE OPAQUE PROJECTOR

Projects illustrations up to 32-
3/4" and enlarges them 50 times
or negatives needed. Projects
charts, diagrams, pictures, pho-
tos, lettering in full color or
black-and-white. Operates on
115 volt A.C. current, 60-62
extension cord and plug included.
Operates on 60-watt bulb, and
included approved by Under-
writers' Laboratories, Inc. Size 12-
1/2" x 8" x 12" wide, Wt. 1 lb., 2 1/2". Plastic case with built-in handle.
Stock No. 70,199-A \$7.95 Postpaid

SCIENCE TREASURE CHESTS

For Boys—Girls—Adults!

Excellent "Science Fair" Material!



Science Treasure Chest — Extra-
powerful magnets, polarizing filters,
compass, one-way-mirror film, 35-
mm diffraction grating, and lots of other
items for hundreds of thrilling experi-
ments, plus a Ten-Lens Kit for making
telescopes, microscopes, etc. Full in-
structions included.

Stock No. 70,342-A \$5.00 Ppd.

Science Treasure Chest, Deluxe — Everything in

Scientific models set, in-
mirrors, and lots more;
Stock No. 70,343-A \$10.00 Pos.

BARGAIN! 7 x 50 MONOCULAR

Fine quality, American made
instrument — war surplus!
Actually 1/2 of U. S. Govt.
7 x 50 Binocular, Brand new.
Stock No. 50,003-A
\$15.00 Postpaid



WAR SURPLUS ELECTRIC GENERATOR



Brand-new Signal Corps
Generator for endless ex-
periments, electrical uses,
demonstrations. Generates
up to 90 volts by turning
crank. Use in high im-
pedance relays, time bolts. Or
charge ground and bring up
night crawlers for fishing.

Has 2 Alnico Magnets. Weight 2 lbs. Cost-Govt.
\$15.00
Stock No. 50,225-A \$4.95 Postpaid

Get FREE CATALOG "A"

144 PAGES—OVER 1000 BARGAINS

World's largest variety of Optical
Items. Bargains galore. War
surplus — Imported — Domestic
Telescopes, Binoculars, Satellite
Telescopes, Infrared, sniperscopes
and parts, Prisms, Lenses, Reticles,
Mirrors and dozens of other hard-to-
get Optical Items.

Write for Free Catalog "A"



ORDER BY STOCK NUMBER, SEND CHECK OR MONEY ORDER, SATISFACTION GUARANTEED!

EDMUND SCIENTIFIC CO., BARRINGTON, N. J.